AMERICAN CINEMATOGRAPHER

FOR AMATEUR AND PROFESSIONAL PHOTOGRAPHERS

June
1939
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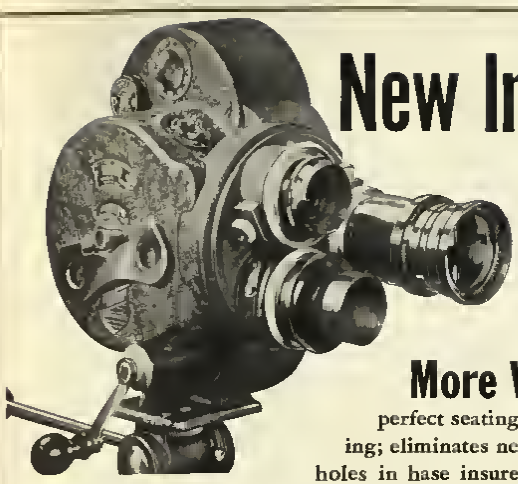

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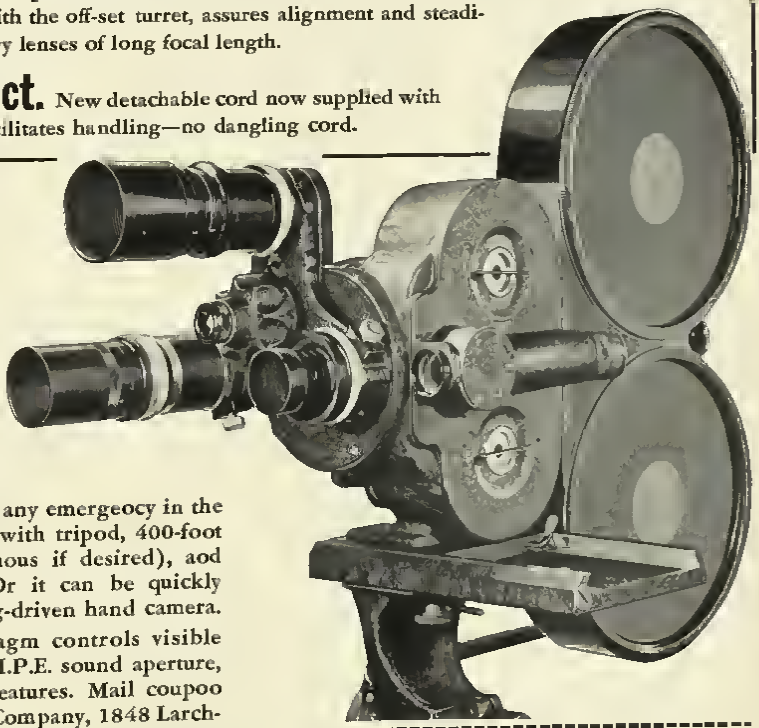

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Ziegfred Levy exposed this still picture of Margo and Walter Abel in Arcadia's "Miracle of Main Street," photographed by Charles J. Van Enger, A.S.C., for Grand National.

THE COVER

HERE is a scene from Twentieth Century-Fox's story of India, "The Rains Came." With Bert Glennon, A.S.C., in the chair, Tyrone Power and Myrna Loy are shown on horseback. The subject is directed by Clarence Brown. The still was exposed by Cliff Maupin.

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NEW YORK REPRESENTATIVE
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Phone Plaza 3-0483

FOREIGN REPRESENTATIVE
Georges Benoit, 100 Allee Franklin
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AUSTRALIAN REPRESENTATIVE
McGill's, 179 Elizabeth Street, Melbourne,
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Emery Huse, technical authority on motion pictures, who has just returned from visit to Australia, where he paid especial attention to laboratory work.

Problems Faced by Labs in Australia

By EMERY HUSE, A.S.C.

West Coast Manager Motion Picture Film Department Eastman Kodak Company

Technical Editor American Cinematographer

IT was recently my good fortune to visit Australia, primarily to study the motion picture industry as it exists in Sydney, with particular attention being devoted to laboratory work. It was extremely interesting to study the technical side of the industry as well as to observe the reaction of the Australian people toward American motion pictures.

The motion picture industry is usually considered as being divided into the separate groups of production, laboratory, distribution and exhibition. The Australian motion picture industry differs from the American in one major respect, and that is production.

There has been and there is currently very little actual motion picture production, although one company does produce from time to time a feature length motion picture.

Australian Problems

Distribution and exhibition problems are not greatly dissimilar to those existing in this country. The laboratory side of the motion picture business as far as Australia is concerned, however, assumes major proportions because primarily the entire industry is hinged around the manufacture of release prints by five different laboratories.

These five laboratories variously handle the work coming in from American and British producers. Their job consists of making prints for distribution from duplicate negatives. In some instances it is necessary for the laboratories to make the duplicate negatives from which they make their release prints.

It undoubtedly would be of interest to those connected with the local motion picture industry to get a little better picture of the problems actually confronting the laboratories in Australia.

Every laboratory in Australia uses developing machines of one kind or another. In most instances these are machines which had to be devised and built by themselves since it has been impossible because of high restrictive tariffs to import into Australia foreign mechanical equipment.

It was very gratifying to find that the laboratory men in Australia did not differ materially from the laboratory men in the United States. They are earnest, conscientious men striving to turn out high grade products for the screen. Their problems and troubles are quite comparable to those of an American laboratory.

They are not fortunate enough to have great volumes of work to keep their plants running continuously and smoothly, as for any good picture only ten to fifteen release copies are necessary to cover the Australian distribution.

Currently, certain of the major American producing companies are submitting to Australia composite fine grain duplicate negatives from which release prints are made. With such material the job of the Australian laboratories is relatively simple in that they have only to make release prints.

Can't Do Impossible

Some of the other American producing companies are not doing a good job in this respect and submit either lavender master positives or, as in some instances, a black and white print, the quality of which is not of the best and most certainly not suitable for duplicating purposes.

When prints are submitted to the laboratories they must make duplicate negatives, and while the Australian laboratories do as good a job as can be expected it is impossible for them to improve upon the quality of the material as they receive it from their American principals.

As a result those American companies which do not give proper attention to their foreign markets are actually suffering by comparison with those ma-

jor producing companies who are giving due consideration to this branch of their business.

While it can be argued that photographic quality does not necessarily sell a picture, it is definitely without argument that the quality of American goods in foreign countries is judged by visual quality as well as by other salable points.

Australia, like America, has many double feature bills in its theatres, and the difference between prints from those American companies giving thought to their foreign distribution and those which do not is outstanding and decidedly in favor of those companies doing the better job.

Australian Giving Break

The prints from those major companies submitting fine grain duplicate negatives are of very high quality, while those companies which submit only black and white prints or poorly made lavender master positives show very poor quality.

It should be stated here that considering the conditions under which the Australian laboratories have to work they are turning out an extremely satisfactory print quality. They are not gifted with new laboratory buildings, with new equipment, complete air conditioning and all of the many refinements which seem necessary in this country for good laboratory work.

Therefore, the job of the Australian laboratory man is even harder and requires considerably more care and attention on the part of the laboratory crew.

In view of all this he is giving the American producer a very good break and generally much better than some producers are giving him. There need be no qualms in the minds of the American producers that the foreign laboratories, particularly those in Australia, are not doing their part.

Sydney Theatre Town

To give some idea of the interest shown in motion pictures by the general public it should be stated that there are as many if not more major downtown theatres in the city of Sidney than there are in Los Angeles.

As far as neighborhood houses are concerned they are very numerous, too, and while Sydney does not cover the area that is covered by Los Angeles it nevertheless has a very comparable population.

It was my experience in attending some twenty-five theatres in Sydney that the programs were put on very excellently in theatres which were extremely comfortably built, with projection conditions as good as those in most American houses and with interest shown by the public as great if not greater than that shown in many American cities.

It would seem, therefore, that anything that could be done by the American producers to increase the quality of their own product in the foreign markets should be done.

The old adage "seeing is believing" is certainly true, and those producers who might feel that anything is good enough for their foreign markets should immediately amend those thoughts.

There is some possibility of future picture production in Sydney. At this time it is difficult to say when or how much production will be attempted. At any rate there is a great desire for an Australian production industry, and since there is the spark of desire who can say what the future will hold?

STRANGER IN NEW YORK

By GEORGE BLAISDELL

AFTER an absence from New York of fifteen years the big town does not seem the same place it used to be. Of course it has not changed so much. It is bigger and greater. There have been vast improvements in highways and bridges. Buildings are higher and wider. The subways? Insufferable. If any pilgrim is in doubt of that let him, alone and without a map, start at 9 o'clock of an evening at Times Square to make his way to some central point in Newark.

It's a long story. After being baffled by the absence of attendants who can give a stranger a tip, by closed ticket offices, by an absence of trainmen at their old posts between cars—perhaps two men to a train outside of the motorman—it may not seem unnatural if the stranger is forced to the conclusion that while New York may proclaim in great pride to the world it is the home of the marvelous Radio City it also should don sackcloth and ashes when the subway is mentioned If in doubt ask one of the trainmen.

●

The National Photographic Dealers Association put on a great show in the Hotel Astor from April 24 to 27. Attending were 808 dealers and representatives, 601 exhibitors and representatives at 125 booths, and 7550 guests. At the banquet at the close of the week were present 664 guests. If you will turn to the centre of the book you will have a chance to count 'em.

The officers under President Charles Bass of Chicago already are sounding out members and exhibitors regarding another exhibit next April and inquiring as to preferences as to where it shall be held. They are asking if it is not to be held in New York what city is preferred. After all it is a big country.

●

One of the pleasures of the visit was the meeting, at the convention and at the offices of Movie Makers, of the men who make that magazine. Among these were Colonel Roy W. Winton, managing director; Arthur L. Gale, editor; Russell C. Holslag, advertising manager; Frederick G. Beach, technical editor; James W. Moore, continuity editor; Alexander De Canedo, art editor, and many others of the large staff.

Also there was a look-in on the print shop of the greatest newspaper in the world—The New York Times. This is not the place to tell the story of that print shop, but it is a tale that will have plenty of interest for every human who reads a newspaper. And yet less than fifty years ago that same journal was in the hands of receivers, its delivery equipment was limited to two wagons—Nos. 7 and 14—and the financial outlook for the publication was plenty blue.

Then on the scene entered a young man of thirty-six years from Chattanooga, already a successful publisher. Adolph S. Ochs quickly wrought a transformation. In a comparatively few months he was a nightly visitor on the composing room floor — ordering OUT ads. To a protesting printer he smiled. "Always give your readers a chance," he remarked.

It was not long before more presses were installed and the publisher was able to increase his pages from sixteen to eighteen without cutting the capacity of his presses in two. But that really was a long time ago.

●

E. B. Lang of New York makes a pertinent inquiry. He pleads inability to make sense of a story in which manifestly he was interested. That it may be clear also to others it will be necessary only to transpose the first four lines of Page 230 of the May issue to the top of the first column of Page 201 and the story of "Hollywood Engineer Designs New Type Meter" may then be intelligible. Thirty pages really is too much of a jump for a reader to surmount with ease, but like unnumbered other crimes parallel and worse the perpetrator never will be known. In fact, it is quite likely he is himself in complete ignorance of his "bust."

●

Another pleasure that rated high on the trip East was a visit to the home of the Duncan Littles. There is a home to delight the heart of the movie fan. It is entirely believable that in the City of New York there are few built on the same mold. As you step into the apartment you enter a great room that roughly must be thirty-five feet square and at least as high. On one

side is a set of portholes that supply the urge to get on the other side.

Later the opportunity is presented. Perhaps we may be able some time to print the pictures of these two rooms —the ones that serve so strikingly the purposes of theatre and projection room. In the latter, which of course is a projection room only by courtesy and on occasion, there is a section devoted to records. It is of sufficient size seemingly to supply stock for a good sized store. Also there is a place for every conceivable convenience of the amateur cine projectionist.

The Littles had put on a second showing of their Tenth Party at the request of the Photo Patrons Club of the East Side (Newark) High School. To this school had been invited the boys and girls interested in movie making in all high schools in Newark and surrounding territory. It was described as a party to be remembered.

"Married Man"

By J. ROY HESS

She tells me how to drive,
And she tells me how to walk;
She tells me what to eat,
And she tells me how to talk;
She tells me when to go to bed
And what I should prefer.
I wonder how I got along
Before I married her?

—Cinema Digest.

For the evening there had been a showing at the Newark Art Club. It was there we slid in late that night. As we stood in the doorway we were cordially invited to enter.

"I was looking for Mr. Little," the visitor said.

"Right here," came from a table.

"I'm just in from Hollywood."

There was a real handshake, followed by introductions.

It was then late, but it was later when we bade good-night to the genial couple, with an agreement to meet three days later.

We shall make a real effort to get pictures of the Littles' Home Theatre

●

An unusual experience was a tour through the great plant of the Spencer Lens Company in Buffalo. That this company is planning an expansion may be judged by the magnitude of the building just completed on a recently purchased twenty-three-acre plot of ground. It is 210 by 410 feet in area with a power and heating plant in addition to that. The old building will continue in service.

Frank B. Good, Secretary-Treasurer A.S.C.

Frank B. Good, A.S.C., Secretary-Treasurer

FRANK B. GOOD, A.S.C., from the first a member of the American Society of Cinematographers and almost uninterruptedly a member of the Board of Governors for the twenty years of the society's existence, is the new treasurer of the body. Since 1934 he has served as secretary. He now carries the added honor of secretary-treasurer.

It was in 1914 when the new treasurer took up camera work. His first engagement was with the Ford Sterling company, the star of which was affiliated with Fred Balshofer. The studio was on the northwest corner of Sunset and Gower, the site formerly occupied by David Horsley. It now is occupied by the imposing edifice of the Columbia Broadcasting Studio.

After this engagement Good went to D. W. Griffith's Majestic-Reliance Studio at 4500 Sunset Boulevard, where for two and a half years he photographed Norma Talmadge. Then he joined the William Fox company, the studio of which was in Edendale. Here he remained seven years. Then for five years he photographed all of Jacky Coogan's pictures.

He was several years at the Warner Brothers' Studio and then for three and a half years he photographed George O'Brien at the Sol Lesser studio. For Paramount's "Spawn of the North" several months were spent in Alaska making location shots on the great melodrama.

In these years Frank Good has seen and been a part of many advances in the photographic world. He has had his share of color, too, in Technicolor and with bi-pack. Among the Technicolor subjects which fell to him in the Warner studio were "On with the Show," "Song of the West," "Song of the Flame," "Sweet Kitty Bellairs" and "Viennese Nights."

Why Not Stage Real Movie Party

Members of the program committee of the Minneapolis Cine Club, ready to inspect films of possible Movie Party caliber. A flood of entries later required two projectors for throwing two pictures simultaneously on a split screen to speed judging. George Culbertson, who aided with sound synchronization, is shown kneeling as he threads projector.

By ORMAL I. SPRUNGMAN

All flash pictures and 16mm. movie frames enlarged by writer

NOTE—We literally held the presses in order to bring you this timely, behind-the-scenes picture story of the Minneapolis Cine Club's Second Annual Movie Party, while the news was still hot. Perhaps other movie clubs in other parts of the country may be inspired to undertake similar public screenings as a result of this article.—Ed.

ON May 12, 1939—hardly a fortnight ago—one of the largest audiences in the country ever to attend an amateur-produced public screening again had an opportunity to witness some 3,000 feet of selected 16mm. monochrome and Kodachrome footage in the luxurious, capacity-filled theater of the downtown Minneapolis Woman's Club.

Among the more than 600 rabid amateur movie fans and their guests who managed to endure the Minneapolis Cine Club's two-hour Movie Party too few realized perhaps the weeks and months of planning and special preparation necessary to produce the smooth flowing finished product.

It was shortly after the first of the year that Harold Bronson, program chairman of the local club and general chairman of the group's Second Annual Movie Party, issued the initial call for movie inspection.

Because of the large 8 by 10 foot screen size, only 16mm. entries could be considered, despite the fact that several excellent 8mm. productions were available. Films previously screened during regular club programs were recalled for consideration, and other footage varying from lengthy travelogs to newsreel and feature shorts literally swamped the program committee, which judged all entries.

Special Meetings Weekly

In fact, special meetings were called weekly, and two projectors were used to show individual reels simultaneously on a split screen. Refreshments served in the various members' homes helped to stimulate interest in the club project.

Films were judged solely for their exposure, camera handling, subject matter and possible audience appeal. Exposure rated first attention, for a slightly underexposed shot blown up on an 8 by 10 foot screen would look doubly under, while a slightly overexposed shot was not nearly so noticeable. Correct exposure, of course, was most sought after.

Following the practice of professional theater presentations, the club's program was divided into three parts: Newsettes of Other Years, Feature, Fact and Fancy and Travelore.

Newsreel and feature shorts, running around 1500 feet, filled the first reel. The second big reel handled only the travel stuff, including a special experimental subject.

Variety in treatment and subject matter was the keynote of the newsettes. One club member had filmed a Kentucky coal mine fire at night. Another had resurrected some priceless scenes, taken more than a decade ago, showing Zona Gale piloting her father's train, the "William Crooks," now on display at the New York World's Fair.

There were sport shorts on air maneuvers, midget auto racing, boxing and even human moles tunneling 80 feet beneath the city's streets.

Wide Variety

One local amateur had filmed a Jimmy Lynch thrill show, capturing the actual head-on crash of two fast-traveling cars, and a singleton plunging through a blazing wall. Another had filmed the humorous frolic of some of Oregon's wobbly legged lambs.

Among the Kodachrome newsettes were closeups of tropical fish in a home aquarium, illuminated only by window sunlight; slow motion golf against a cloud-fluffed background, and downtown street signs in color at night.

Carroll Davidson, last year's program chairman who first suggested the Movie Party idea, had devised a special metal arm for his movie camera to accommodate an overhead photoflood in reflector.

A range finder also was fitted to the arm, including a homemade exposure scale for distances and several coils of extension cord. During the 1938 movie party he had wandered at large shooting candid closeup of guests entering the auditorium, as well as operations on the stage and in the booth.

This footage, along with similar stuff exposed at the club's Christmas party, was included as a newsreel sidelight for a personal touch.

Featurettes which were too long for the newsreel, yet too short for the travel department, also found a spot, and these included lei-making in Minneapolis, a Black Hills pow-wow, the Livingston Round-Up, Grand Canyon scenic study, Yellowstone waterways and wildlife, Babes in Movie-Land, and a short skit, titled "Vanishing Cream."

Oriental Formula

This scenario, revamped from one published in the new Eastman book, "How to Make Good Movies," concerns a cine club president who buys a new type vanishing cream for his wife, finally trying it on his own chapped hands. That evening the boys from the movie club drop in for an informal get-to-

gether, and each is greeted with a cordial hand-shake

One by one, during the evening, the boys begin to vanish When all the guests have disappeared via thin air, the club president suddenly remembers about that jar of cream, which he fetches promptly. Inspected closely, the label reads, "Oriental Formula," and as the prexy raises his hand to his perspiring brow, he too vanishes as "The End" fades in.

This skit, which offers numerous other angles, was filmed indoors on a rainy Sunday morning. To give the illusion of a rapid disappearance, both camera motor and scene action were halted momentarily while one of the actors stepped out of the picture, then filming resumed.

Baby movies hold almost universal appeal, particularly among the women, and much more footage was devoted to baby subjects than heretofore. This was combined under the general heading, "Babes in Movieland, an Intimate Closeup of Club Member Offspring." A sample subtitle, for instance, would read something like that in the next column.

In the Travelore section, Leslie R. Olsen, former club president, contributed a well-exposed 400-foot California feature, covering the Santa Anita races

Left, special telephone communication was maintained at all times between stage and soundproof projection booth.

Right, Dr. Leonard Martin at the controls. Sound discs as well as musical recordings were played on dual turntables with three pickup arms.

and a preview of the Golden Gate International Exposition.

Falconer Thomas kicked in with a 300-footer on musky fishing in Lake of the Woods, while Dan Billman, Jr., whose West Indies reel, "Black Cousins," was described in last month's American Cinematographer, furnished an abbreviated version of Hawaiian Honeymoon,

Dr. & Mrs. Reinhold Ericson
present
JOHN
Age: Two years

boiled from a 1200-foot feature down to 400 feet. Hellroarin' Heaven, the editing of which was covered in February AC, closed the program.

To fill the gap between two longer fextures, a short novelty movie number was introduced in the form of an experimental attempt at lip synchronization. This was created by filming a vocal as well as an instrumental trio going through lip and arm movements while a recording of Decca's "Down by the Old Mill Stream" was being played simultaneously.

Since no synchronization was possible between camera and turntable [illegible] careful editing and varying the [illegible] jector speed brought about reasonably good synchronization, which proved to be one of the show's sensations

Editing and Titling

The manner in which amateur movie reels can be built around musical recordings, such as this one, will be described and pictured at length in the July issue.

Editing and titling also played an upper role in the preparation of the final reels. Few were the acceptable entries which did not require the elimination of one or more scenes or a slight change in continuity. Some of the newsreel briefs were salvaged highlights from much longer features

No film was altered without the owner's permission, and where such permission was not granted, the entire contribution was rejected with thanks Every effort was made to include only the best exposed footage, and film judges made no compromise.

Rome Riebeth, club secretary and editor, constructed a homemade titler in his workshop to permit zooms, flip-overs and other tricks, and this was used for filming the introductory, double-exposed main titles, hand lettered by Ray Rieschl. The balance of the titles were

Left, 16mm. color frame enlargement from Stanley Berglund's "Babes in Movieland" sidelight.

Right, 16mm. frame enlargement of main title for "Vanishing Cream" While camera motor spins, cold-creamed hands lower over wording for dramatic effect.

type-set and photographed on appropriate backgrounds by a New York titling concern.

Fitting music to this conglomeration of scenes and sequences was no easy job. With few exceptions, none of the movies had ever before been played with music, and the sound staff labored hard through one solid week of rehearsals preceding the final screening. Numerous recordings were suggested, tried and discarded.

Music Fooled 'Em.

The final music was selected from more than a hundred recordings. In fact, the presentation was so smooth and perfectly timed that some of the audience actually thought that the entire film carried its own sound track.

Dr Leonard Martin, 8mm. enthusiast, utilized homemade dual turntables with three pickup arms for playing the background, ably assisted by George Culbertson, sound technician of last year's Movie Party who recently joined the staff of radio station WCCO.

Mr Rieschl, who has just invented and patented a revolutionary device for 8mm Filmos to permit fades and dissolves, handled the natural, man-made sound before a microphone. The simple manner in which these sounds were created to supplement disc recordings often stumped even the experts in the audience.

Left, This unique titler, permitting zooms, fades and other tricks, was built by Secretary Rome Riebeth (right). Ray Rieschl (left) handlettered main titles. President W. R. Everett (center) gives his final okeh.

Right, Carroll Davidson, seated in audience, advises booth of sound reception and projection. Special telephones were used.

The realistic thump-thump of boxing gloves was recreated perfectly by finger drumming the microphone, the face of which was covered with a slipover dish cover. Campfire licks of flames were made natural sounding by crinkling cellophane close to the mike.

"Plop" of Golf Ball

The properly timed "plop" of the golf ball was imitated by tapping the mike sharply with a pencil during the down stroke of the club—a stunt originally used by Hamilton Jones, Hiram Percy Maxim award winner, during his public presentations of "Western Holiday."

In the pony racing scenes Rieschl aped the light beat of horse hoofs on dirt by finger-thumping his chest in rapid action, synchronizing his speed for any gait. The baa-ing of sheep and a horse's whinny were done by mouth, while a real duck call was used before the mike in a brief duck hunting sequence.

Among sound effects records employed were fanfare, fire and screaming sirens, trains, airplane motor, traffic noises, waterfalls, baby crying, steamer whistles and harbor sounds.

An outboard motor recording was made even more realistic by touching the edge of the revolving disc with varying finger pressure to reproduce the underwater tones of a gurgling motor.

Ear phones were worn by the projectionists as well as the sound men in the projection booth in order to watch synchronization even more closely. Such phones were essential during the screening of the novelty, "Down by the Old Mill Stream," which called for both eye and ear work.

Dealers Helped

Minneapolis camera stores voluntarily supported the show in many ways. The local Eastman store loaned equipment and donated film for special jobs, expertly filmed by Arthur Schwartz, charter member of the Minneapolis Cine Club and the oldest movie maker in point of actual filming in the Northwest.

Leigh, Inc. took care of title costs. National Camera Exchange loaned a costly 1200-watt Bell & Howell sound projector. The Da-Lite Screen Company furnished an 8 by 10 foot beaded screen, mounted on special tripod supports. The Amateur Cinema League of New York City sent in cuts and program ideas. A local letter agency gave the tickets.

With such unselfish cooperation, it

Left, 16mm. monochrome frame enlargement from Carroll Davidson's Jimmy Lynch thrill show, which was newsreel feature.

Right, 16mm. color frame enlargement from Monroe Kelly's Black Hills Indian Pow-wow.

To swing projector for smooth right angle turn for title background, machine was set atop swivel chair. Ray Rueschl (left) assists, while Edward Johnson, sprawled on floor, does manual labor.

would have been disappointing if the Second Annual Movie Party had not been a success. To defray auditorium costs and other incidental expense, each of the group's 75 members was assessed $1.50, for which he received eight tickets.

Additional ducats could be obtained only from members who had extras to sell. Remaining tickets were given to the press and cooperating firms and individuals.

Already members have begun talking about next year's Movie Party, and several individuals are planning special movie stunts in forthcoming months to insure a place for their reels when the final selection is made.

Nobody knows what the Minneapolis Cine Club's next Movie Party will hold in store for its guests. A good many thousands of feet of movies will probably ramble through local cameras before 1940 bows itself in. A new program chairman will take the reins by that time, and the Third Annual Movie Party will be *his* baby—and his special worry.

Kalart Holds Contest

A photographic contest with $250 in cash prizes has just been announced by the Kalart Company. Twenty-five awards of $10 each will be paid for the best pictures taken with a Kalart Micromatic Speed Flash. There are no restrictions as to type of flash pictures, time when picture was taken, etc. The closing date is December 1, 1939.

Prints must not be smaller than 2¼ x 3¼ nor larger than 11 x 14. Enlargements and contact prints are acceptable.

Program Chairman Harold Bronson (left) shoots the main title of the skit, "Vanishing Cream." See 16mm. frame enlargement of actual title filmed showing how hands lowered over title card add unique effect.

General Electric Flashes World's Brightest Light

On the night of the opening of the New York World's Fair, April 30, more than forty-two million lumen-seconds of light—equivalent to the combined illumination output, for the duration of a second, of a 100-watt reading lamp in each of 27,392 homes—were emitted by a combination of twenty-four "flood-flash" lamps and 100 large-sized photoflash lamps mounted at the 500 and 320 foot levels of the Trylon.

The "flood-flash" lamp, a special development of the General Electric Research Laboratories at Nela Park, Cleveland, employs a striking characteristic of the unique 100-watt mercury lamp; namely, its ability to withstand an untold number of sudden, powerful "doses" of electrical energy, to each of which it responds by emitting a brilliant, lightning-like flash. These flashes can be made to occur at frequencies as close as 1/60th of a second.

If desired, a peak brilliance of several million lumens can be produced with each flash. At the Fair's ceremonies, each lamp produced a million lumens. (A lumen is the amount of light required to illuminate an area of one square foot to an intensity of one foot-candle. A foot-candle is the amount of light cast by a standard candle on an object held one foot away from it.)

Kodak Issues Advice

Available without charge through Cine-Kodak dealers, Eastman Kodak offers moviemakers compact advice and four useful exposure tables covering the four most used types of lighting for indoor filming.

The folder discusses filming by regular daylight, by a combination of daylight and daylight photofloods, by regular Mazda lighting, and by Photofloods in Kodaflectors. Exposure tables give data not only for black-and-white Cine Kodak films, but also for Cine-Kodak Kodachrome. Diagrams supplement the concise text, and show how camera and light sources are best placed.

A new lens in the Ektar series of Kodak Anastigmats—the Kodak Anastigmat Ektar f.3.7, with an equivalent focus of 4¼ inches,—is announced from Rochester by the Eastman Kodak Company.

The new lens covers a 2¼ by 3¼ film or plate at full aperature.

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TELEVISION HIGHLIGHTS ENGINEERS' CONVENTION

By WILLIAM STULL, A.S.C.

TELEVISION highlighted the closing session of the spring convention of the Society of Motion Picture Engineers. Actual television demonstrations, participated in by the Hollywood Television Society, and a group of practical papers in which leaders in the television field discussed practical problems currently encountered in American television broadcasting comprised a closing program for which the Engineers' papers committee, Editorial Vice President J. I. Crabtree, Convention Vice President W. C. Kunzmann, and the ever-efficient program organization and management of Editor Sylvan Harris deserve unbounded credit.

Dealing with a subject usually treated either as an imminent menace to motion pictures or as a development of the distant future, the report of the society's television committee, chairmaned by Dr. A. N. Goldsmith, struck a commendably sane note.

This report stated in part that "The result (of the committee's preparatory work) is not forthcoming at this time in specific form because of several reasons: first, it is necessary that the committee and its sub-committees adjust their viewpoint with respect to the relation between the motion picture industry and the television art; second, most of the subjects engaging the attention of the committee are long-term projects; and, third, the television art is in so marked a state of flux at the present time that great care must be taken to differentiate between accepted practice and transient developmental steps.

Sticking to Facts

"In reporting on the state of the art it is the purpose of the committee to avoid causing undue or unjustified concern to the motion picture industry or giving inaccurate ideas as to the imminence of large scale commercial television developments or the mode of utilization of the products of the motion picture industry.

"As a matter of policy, only factual matter is to be included in these reports, opinions being avoided so far as possible; and no attempt is to be made at any time to issue either reassuring or alarming statements or non-technical generalities.

"It is hoped to avoid conflicting standards or practices in the two arts . . . Reports will be made at timely intervals, as developments may direct. The first aim of these reports is to be historical and instructional, the second to guard against misunderstanding, misstatements in the press, unnecessary conflicts of aims or opinions. The third is to act as one guiding agency, furthering interchange of mutually helpful data.

"The characteristics of iconoscopes (television photosensitive tubes. ED) have been changing as new and better models were produced. These changes affected the lighting set-ups, the lenses, the treatment of the sets and other phases of production technique, and any report that might be made at the present moment might be obsolete and misleading by the time it reaches the members of the society.

Lubcke Discusses Production

"As a basis of a temporarily acceptable policy for the industry, the opinion appears to be that the present motion picture standards are acceptable for television and that television will try to work toward those standards.

"There are differences, however, between the requirements of the television art and those of the motion picture art. Some time will probably pass before production and reproduction technic of television will reach a stage of stability such as to permit a determination of standards of production."

One of the most interesting papers was that presented by Harry R. Lubcke, director of television for the Mutual-Don Lee Broadcasting System. Shortly before, the regular Friday night television program from the Don Lee television station W6XAO had been viewed by the members on three television receivers set up in the exhibit rooms by members of the Hollywood Television Society, two of the receivers being home-built instruments, and the third a commercial Dumont receiver.

Lubcke's paper, entitled "An Introduction to Television Production," stated in part that "in writing scripts, cognizance is taken of the fact that large and elaborate sets are beyond the present scope of television economically, if not otherwise, and that physically impossible action must not be imposed upon the cast.

"Through the use of miniatures, however, otherwise impossible action has been televised.

"We have found that real properties invariably televise satisfactorily, although suitable illumination may be required for emphasis. In painted properties, such as background, windows and fireplaces, the delineation of the object from the general tone of the background should be sharp and the width of the line comprising the structures bold.

"For multi-character scenes, the longshot is often used with complete settings, such as a room, which may assist in the story. If small items of interest are to be displayed, however, the scene may be modified from what would normally be a longshot to one showing only half or two-thirds of the principals involved.

Lighting Counts Heavily

"One scene may be changed into the other by moving the camera or by moving the principals. Changes from longshot to closeup may be made once or twice during an episode. Changes of scene are usually accomplished by panning, under which conditions two sets are established on opposite sides of the general stage area.

"The technique of lighting for television appears to be one of the most fruitful in creating pleasing artistic effects. So-called 'flat lighting' will give television pictures, but ones which have little interest and sparkle compared to those televised with more elaborate lighting.

"The advance in technique appears to be only limited by the number of lighting units available and the possibility of maneuvering them as required for the changing conditions brought about by motion of the performers on the set. This problem is complicated by the fact that in television illumination must be continuous for the total duration of the act.

"In our studio a portable switching panel is installed which gives control of individual or limited groups of all

the lights utilized. With this device the lighting supervisor can vary the lighting considerably without touching any unit.

"This control is usually supplemented by changing diffusers, changing the angle of the unit, and/or change of position of mobile units by lighting assistants.

"Hard back lighting has been found to be a very desirable component in the lighting pattern. This must be supplied by lens-reflector units of the type of the Mole-Richardson 210. General lighting is properly supplied by lamps in dull finish reflectors, and modeling lights for the face must be diffused with one or more diffusing screens.

Pure White Light Ideal

"The camera photoelectric tube suffers a form of overload similar to overexposure if the illumination on the subject is too great. This usually occurs first on the faces of the performers.

"This condition is eliminated by either reducing the amount or hardness of the light or by stopping down the lens aperture. It has further been found that the spectral characteristic of the light exercised an important effect upon the resulting image. A pure white light is the ideal.

"Make-up is also a factor. A base paint approximately No. 29 Panchromatic is used as a start. Eyebrows are accentuated with black or dark brown lines. Lipstick of a brownish-violet shade is applied.

"This color has been found desirable after considerable tests in performance with red lipstick, because the camera tube exhibits increased sensitivity in the red region of the spectrum and because red light energy is particularly predominant in the incandescent illumination utilized."

Protzman on Technique

Television studio technique was discussed by Albert W. Protzman of the National Broadcasting Company, who in discussing the New York NBC telecast methods said in part:

"Television technique and apparatus constantly advance. Some technique now current may be outmoded in a day or a month. We have only to recall the early days of motion picture production, when slow-speed film and inferior lenses were a constant limitation.

"So with television it is already possible to envision more sensitive pick-up tubes which will permit the use of lenses of much shorter focal length, thus eliminating many of today's operating difficulties.

"In May 1935 the Radio Corporation of America released television from its research laboratories for actual field and studio tests. From the stage came the formula of continuity of action, an inherent basic requirement of television. From the motion picture studio came many ideas and techniques. If television is a combination of pictures with sound—and it is, no matter what viewpoint is taken—the result spells in part a motion picture technique at the production end.

"However, enough already has been said about the peculiarities of television presentation to justify saying that movie techniques do not supply the final answer. There remained the major problem of preserving program continuity without losing too much of motion picture production's flexibility.

Studio Dimensions

"Physically our live talent studio is 30 feet wide, 50 feet long and 18 feet high. Such a size should not be considered as a recommendation as to the desired size and proportions of a television studio, as it was formerly a radio broadcasting studio and not designed for television. Yet in spite of the limited space, some involved multi-set pick-ups have been successfully achieved.

"Sets are usually placed at one end of the studio. Control facilities are located at the opposite end in an elevated booth affording a full view of the studio to the control room staff.

Any small sets which supplement the main set are placed along the side walls as near the main set as possible, and in such position as to minimize camera movement. At all times we reserve as much floor space as possible for camera operations and such floor lamps as are absolutely essential. At the rear of the studio is a permanent projection room for background projection.

"The studio is at present fitted for three cameras. To each camera is connected a cable about 2 inches in diameter and 50 feet long; it contains 32 conductors including the well-known coaxial cable over which the video (picture) signal is transmitted to the camera's associated equipment in the control room.

"One camera, usually the long-shot camera, is mounted on a regular motion picture type dolly to insure stable movements. It is impractical to lay tracks for dolly shots because usually each camera must be moved frequently in all directions during the televising of a studio show.

Camera Doubly Equipped

"The other studio cameras utilize a specially designed mobile pedestal. These are very flexible and may be moved in and out of position by the operators themselves. Built into the pedestals are

Thomas S. Lee, left, president of the Mutual Don Lee Broadcasting System, largest regional network in the United States and owner of W6XAO, only telecasting station in the eleven states west of Kansas. Right is Harry R. Lubcke, inventive genius and system director of television, holding a fourteen-inch cathode ray tube. Photo by "Dick" Whittington.

motors which elevate or lower the camera controlled by push-buttons. A panning head similar to those used for motion picture cameras is also a part of the pedestal.

"Each camera is equipped with an assembly of two identical lenses displaced 6 inches vertically The upper lens focuses the image on a ground glass which is viewed by the camera operator. The lower lens focuses the image on the 'mosaic,' the iconoscope's light-sensitive plate.

"Lenses with focal lengths from 6½ to 18 inches are used at present. Lenses of shorter focal length or wider angle of pick-up cannot be used since the distance between the mosaic and the glass envelope of the iconoscope is approximately 6 inches.

"In television, the camera operator must do the focusing for fixed shots and dolly shots alike. This added operation, at times, is quite fatiguing.

"Because several cameras are often trained on the same scene from various angles, and because all cameras are silent in operation, performers must be informed which camera is active at the moment. Two large green bullseye signal lamps mounted below the lens assembly are lighted when the particular camera is switched 'on the air.'

"A much greater amount of key light is required in television than in motion pictures. Also a television set must be lighted in such a way that all the camera angles are anticipated and properly lighted at one time.

"Great care must be taken to gobo stray light from all camera lenses This task is not always easy, since during a half-hour performance each camera (of the three used) may make as many as twenty different shots A direct beam of high intensity light may temporarily paralyze a tube, thus rendering it useless for the moment.

"Television sets are usually painted in shades of gray. Color in sets is relatively unimportant. Chalky whites are generally avoided. As in motion picture production, sets must be rendered in considerable detail, as real and genuine as possible; a marked difference, for instance, can be detected between a painted door and a real door

Sets Should Be Light

"Sets also must be designed so they can be struck quickly with a minimum of effort and noise because it is often necessary to change scenes in one part of a studio while the show is going on in another part.

"The problems of background projection in television differ somewhat from those in motion pictures. More light is necessary because of the proportionately greater incident light used on the sets proper.

"Considering the center of a rear-screen projection as zero angle, we must make it possible to make television shots within angles of at least 20 degree angles to either side of zero degrees without appreciable loss of picture brightness.

"This calls for a special screen having a broader viewing angle. Also the background picture size cannot be changed once the program starts. Our background must be sharp and high in contrast for good results.

"At present, glass slides are used. A self-circulating water-cell is used to absorb some of the radiant heat from the arc. Also both sides of the slide are air-cooled. This permits the use of slides for approximately 30-minute periods without damage.

"It never has been necessary to use gruesome make-up for the modern all-electronic RCA television system. At present No. 26 panchromatic base and dark red lipstick is being used satisfactorily.

"All camera operators wear headphones through which they receive instructions from the control-room, where the televised images are observed on special kinescope (cathode-ray tube) monitors.

"The camera operator has no control to switch his camera on the air. All camera switches, which are instantaneous, are made by electric relays in the control-room. At present, the video-engineer's counterpart in motion picture work is the film editor.

Television Has Its Mike

"As in motion picture work, a microphone boom is used in television production. In the television studio at least one camera is always set for a longshot while others are placed for closer shots. We therefore place the microphone in position just outside of range of the longshot.

"In order to accomplish some sense of perspective a variable equalizer automatically is cut into the audio circuits when the longshot camera is on the air. When a closeup camera is switched in the audio returns to closeup perspective quality once more.

"Continuity is so planned that while one camera is taking the action another camera is moving to a new location and composing a new shot to be switched on at the proper time. This frees the first camera, which can now move to a third location, and so on.

"Sometimes during a 20-minute performance each camera may take 20 different shots. Frequently there are outdoor scenes. These are filmed during the first stages of rehearsal for transmission from the film studio at the proper time during the performance.

"The switch to film is handled exactly as another camera switch except that the switch is to the film studio instead of to one of the live studio cameras. When the film is completed the studio cameras again take over the next interior scene."

Television Lighting

What is probably the first detailed discussion of the methods and equipment used in television lighting was given by William C. Eddy of the National Broadcasting Company in his paper on "Television Lighting." Some of the more important statements in this paper follow.

"Starting with studio lighting equipment similar to that used in moving pictures, we have gradually evolved a reasonably satisfactory solution of our illumination problem which has resulted in a new layout of equipment applicable to the demands imposed by television studio operation.

"Of necessity, the light produced had to be a high level diffused illumination in quantities encountered only in the color film studios. In addition, television required that the operation, upkeep and maneuvering of this light be of such simplicity that one or two men could satisfactorily handle routine productions.

"We naturally turned to the standardized fixtures of the moving picture lots for our first tests. In the Radio City Studio we installed routine spots and broads. Due to the limitation of a 19-foot ceiling a practical light bridge was out of the question. As a substitute the major portion of our lighting equipment was installed on portable stands.

"Our next step was a gradual conversion from the concentrated type of unit to the more diffused and uniform light produced by scoop reflectors and floor broads. Focusing spots and suns were still maintained in the studio, but their function was limited to modeling rather than producing the fundamental illumination.

Impracticability Proved

"Lack of physical space for operation, weight and their general inefficiency coupled with unbearable glare on the set soon proved their impracticability even though the unattended light produced by high efficiency lamps met the requirements of the production staff.

"Our next experimental step toward a television lighting system came with the installation of a battery of 120 500-watt units, each equipped with separate reflector and lens systems These lights were positioned on a gridiron over a single set in such a manner that they would produce a cube of uniform, non-directional illumination which, it was hoped, would approximate the character and modeling under high intensity diffused light.

"Needless to say, the resultant picture showed the effect of flat front lighting. Again the spots and suns were brought out of the storeroom and put into operation as modeling units in an attempt to create above this pedestal of 1500 foot-candles the highlights and shade that had been destroyed by the basic arrangement of the foundation light installation.

"Photometric tests conducted in the studio had indicated that the new inside-silvered spotlight would deliver more light into an area per watt consumption than the lens lamp and reflector assembly or the standard incandescent bulb and exterior scoop.

"It remained to design a fixture which

would permit of simple adjustment in elevation and direction to satisfy the requirements of multi-set productions proposed by the program staff.

Light Beams Interlock

"This incorporates six 500-watt spotlights in a framework of thin-walled steel tubing so arranged that the center-to-center distance between lights is 10 inches. This insures that the light beams interlock at a distance of 8 feet from the fixture and that the light arriving in the set is relatively free from spots and secondary shadows.

"The total weight of this fixture, equipped with spots, is slightly less than 19 lbs., and lamped for 3 kw. produces an index of 18 000 units compared with an index of 7650 units registered by an equivalent grouping of lens lamp and reflector units.

"The mechanical arrangement for flexibility consists of a universal clamp for attaching the supporting arm to the gridiron, with rotational freedom possible at the fixture itself. A single adjusting screw allows the operator to set the bank for any desired angle or direction of throw with the framework arranged either horizontally or in a vertical position relative to the studio floor.

"The first of the standardized installations consisted of 18 of these 'single-six' units mounted on the gridiron in such a manner that they could quickly and easily be brought into play on any acting area selected by the production group. As a space-conserving measure a few of these long units were reassembled in two rows of three and designated as 'double-threes.'

"This type of construction was later installed in portable stands for use as floor broads. The 'single-three,' identical with one-half of the 'single-six' was next brought into use.

"The floor broad already referred to is identical with the overhead array except that it is mounted on a portable floor stand. Two of these units are used normally as reinforcing units from stage right and left to create a rough modeling angle or to temper the shadows on the back-drops.

"Our modeling equipment is completed by the addition of two other units, the portable footlight and the hand lamp. This floor light, working with and ahead of the closeup camera, is maneuvered to properly highlight the subject from this camera angle.

Select Camera That's Best

"It is impossible, of course, to light each shot of each camera from the optimum angle in a studio where we find the duration of pick-up from a single camera sometimes a matter of seconds.

"We have therefore made it a practice to work toward the camera that best displays our wares, after making sure that the foundation lighting over the set is so arranged as to supply satisfactory illumination for the other cameras.

"We do not attempt to approach the contrasts common on the stage or in moving pictures. In television we are confronted with a highly compressed contrast range that permits modeling, to be sure, but also holds as a penalty a washout or complete black.

"This has not restricted the use of modeling light, the trend on the other hand being toward the greatest contrast that the electrical system will accept, in preference to the flat, non-dimensional pictures of past years.

"Our failure to mention backlighting does not mean that we have overlooked the possibilities of this type of illumination. On the studio sets we have yet to arrive at a reasonable system of backlighting that will answer all of the requirements of flexibility, weight and operation.

"There have been many statements and many more conjectures as to the light used in television studios. We quote pertinent figures based on our last six-month period of operation. Our average modeling ratio was 2 to 1, while the average light-load was slightly over 50 kw. of 110-volt DC.

"Our lowest foundation lighting level was 800 foot-candles, in a play in which the contrast throughout was carried to the upper limit of the iconoscope. The highest foot-candle reading recorded was slightly over 2500 foot-candles, a continuity where, obviously, little modeling was attempted.

Wide Range

In the discussion following this paper comments by Hollywood cinematographers and lighting engineers brought out the interesting fact that in modern studio cinematography the key-light level (as distinct from the lower foundation-light mentioned) averages, according to the scene and the methods of the individual cinematographer, between 50 and 200 foot-candles for monochrome.

In other words, due to the sensitivity characteristics of present iconoscopes, their physical size and the relatively small apertures (f:4.5 to f:5.6) used to obtain focal depth, present television requires at least ten times as much light as motion picture photography.

On the other hand, television-expert Lubcke told of an instance in the local Don Lee studio where a lighting overload blew the fuses controlling the lighting during a production, leaving only a single 500-watt lamp, on a different circuit, burning in the studio.

Under these conditions, he stated, while definition was of course destroyed, a recognizable outline or silhouette of the image was none the less picked up by the television camera and telecast.

Pleads for Flexibility

One of the most important papers of the convention was that presented by Allen B. Dumont of the Allen B. Dumont Laboratories, the television firm in which the Paramount studio has become financially interested.

Dumont pointed out that while since the inception of radio broadcasting enormous strides have been made in sound quality, the earliest crystal-type receiver is still capable of receiving an intelligible signal from even the latest ultra-high-fidelity broadcast.

This, he stated, was not the case in the present planned television standards, in which the control of picture frequency, number of scanning lines, and other vital factors is built integrally into the receiver.

As Dumont stated, "It is obvious, therefore, that at some future date our present-day so-called high-definition television will compare only with the crystal detector, headphone days of radio. At that time, however, there will be a tremendous investment by the public in television receiving equipment, and the obsolescence of such an investment will not be cordially received.

"It is necessary, however, that such changes take place, and the problem of the present-day engineer is to design his receiving equipment in anticipation of such changes."

In answer to his own criticism Dumont suggested that the design of television receivers be standardized in such a way that control of picture-frequency, scanning and other quality-affecting phases be controlled, not by the basic design of the receiver, but by the synchronizing signals transmitted with the picture from the telecasting station.

Excellent proof of his contention was offered by the Dumont television receiver in the Hollywood Television Society's exhibit. This receiver was apparently designed to receive the 440-line scanning of the NBC telecasts in the New York area.

It had had to be specially adapted—and none too successfully—to receive the 330-line images of the local station.

With one and possibly two other stations contemplated locally, each built to different systems, Hollywood residents should shortly have an opportunity to test the truth of Dumont's thesis, for it is understood that a receiver built to accept images of one television system will receive those sent by other systems poorly, if at all.

B & H Issues Screened Tale of How Cartoons Are Made

Everyone who has ever seen a cartoon movie has wondered how such spirited action can be made from a number of still drawings. Nearly every Hollywood visitor has endeavored (without much success) to crash the studio gates to see cartoon movies in the making.

Now the veil of mystery is lifted by Lowell Thomas in the Universal 16mm. film "Cartoonland Mysteries," available on rental from the Bell & Howell Filmosound Library. In this film the making of an Oswald Rabbit cartoon "Softball Game" is explained in interesting and bilarious detail.

For information write Films Division, Bell & Howell Company, 1801 Larchmont avenue, Chicago.

TRIPLE SUCCESS

THREE good reasons why Eastman's three new films enjoy continued success: The outstanding special features they bring to their particular jobs....The unsurpassed photographic quality they impart to every scene....The priceless assurance of reliability they give to the whole motion picture industry. Eastman Kodak Company, Rochester, N. Y. (J. E. Brulatour, Inc., Distributors, Fort Lee, Chicago, Hollywood.)

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PLUS-X
for general studio use

SUPER-XX
for all difficult shots

BACKGROUND-X
for backgrounds and general exterior work

IMPROVED WILD CINEMOTOR DEVELOPED

By REED N. HAYTHORNE, A.S.C.

A NEW and improved wild cinemotor has just been developed that should be an innovation to all cinematographers. It is small, compact, and complete in every detail. Nothing has been overlooked.

Heretofore the wild motors that have been used by various cinematographers all over the world have had some little detail missing. For instance, the range of voltage is not sufficient, there has not been enough spare power, the clutch would not work smoothly enough, the rheostat would wear, the tachometer (if the motor was equipped with one) would be large and bulky, the weight would be equal to that of a synchronous motor, etc.

This new motor is very light in weight, although it is constructed very sturdily. It weighs only 6 pounds 4½ ounces complete. This includes tachometer nose piece adapted for any of the standard makes of professional motion picture cameras but not the cables.

Constant Speed Cinemotor

It is a constant speed cinemotor of universal type employing a new and radical design for governing the driving member. The governor is unique in type—it is positive and supersensitive in operation. The principle employed is the governing of the camera driver, allowing the motor to run wild, transferring the power of the motor to the camera through medium of a slipping clutch.

The difference in ratio between the motor speed and the camera speed is taken up by the slip of the clutch and at the same time the ratio is calculated so that at no time does the motor assume the full load. The governing mechanism is located on the camera end of the driving member.

When set for a determined speed the clutch cuppling varies in slippage relative to the camera load, which means that the variations of the load in the camera are accepted by the governor, which in turn alters the tightness of the clutch. This construction assures the cinematographer of a most constant camera speed at all times.

The speed regulator is very large, easily accessible and is extremely sensitive. The tachometer is small and is built into the motor. It is adjustable according to the position of the motor on the camera. The tachometer will operate both forward and backward.

Motor Durable

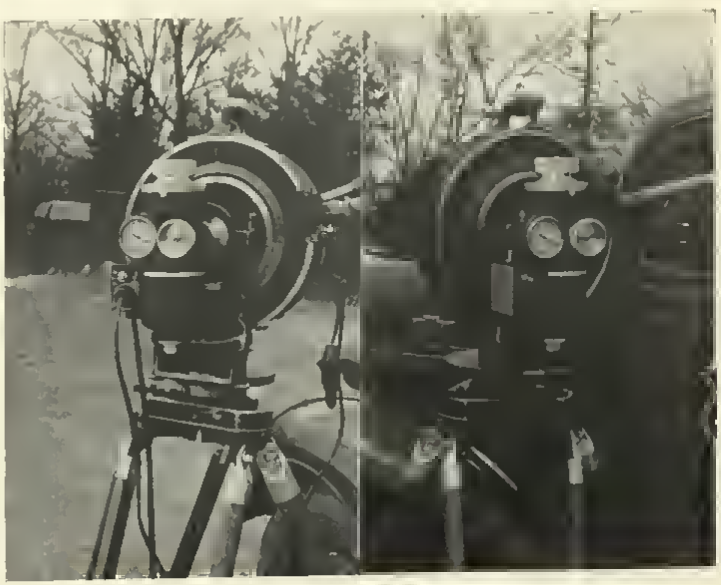
The motor itself is durable and capable of taking high voltage for comparatively long periods of time without burning out. All of the windings are cured in bakelite to insure long life and hard wear under all temperatures and conditions. Although small—only a one-twentieth horse power motor being used—it has sufficient strength to drive any camera at various speeds in any temperature.

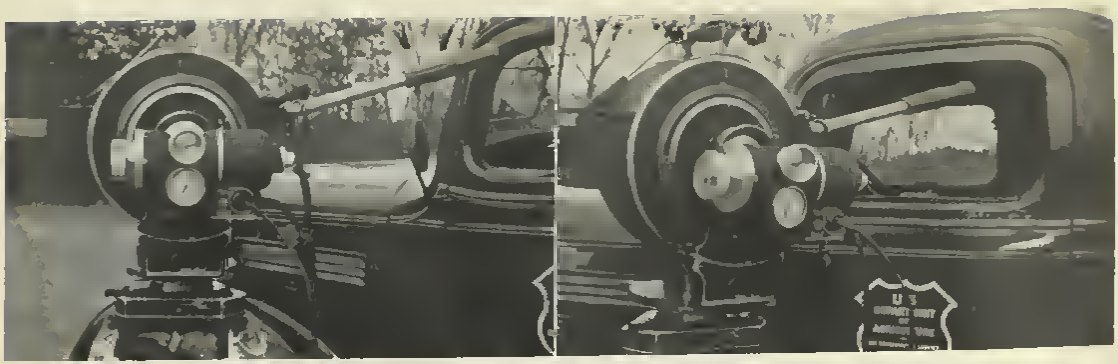
The motor will run forward or reverse without difference in speed, this being accomplished through helical gearing. The size of the motor and the construction principle of the clutch combined minimizes the drain on batteries.

Through tests it has been found that batteries last from 25 to 40 percent longer than with other types of driving principles. The driving gears are made of a new material which was developed by a leading manufacturer of plastic compositions.

It is a linen base bakelite, impregnated with graphite which when made into a gear can be run dry for years without damage. The gear that meshes with the one made of the new composition is steel and tests have shown that after considerable use the steel

The Badgley Cinemotor mounted vertically on an Akeley camera. In this position the friction clutch is most accessible. However, for balance the motor may be changed in order to suit the cinematographer. The clutch adjustment is large enough to be handled in any position. The AC-DC switch is located beside the tachometer on the switch box near the forward and reverse switch.





gear assumed a very high polish almost mirror-like, after which there was no further wearing of either gear.

The material used in the friction clutch is of special composition which withstands wear and tear for years without replacing.

All main motor bearings are anti-friction graphite bronze, supplied with continuous oiling through felt wicks. Very little oiling is necessary, assuring the cinematographer of best performance with the least amount of trouble or care. The motor is supplied with nose pieces for adaptation to any standard make of camera such as DeBrie, Bell and Howell, Akeley and Mitchell.

Simple Adjustments

If a cinematographer carries more than one camera with him and each is of different make the same motor may be used with additional nose pieces that are interchangeable by removing only a few screws. The position of the motor on the camera may be changed to suit the cinematographers' liking by changing a dog located on the nose piece.

Likewise the tachometer may also be turned into position to conform with the position of the motor. This is done by loosening one screw and twisting the tachometer in the motor block. Special nose pieces may be built to order. All nose pieces are made from rolled dural stock affording maximum strength.

The cables consist of one ten-foot main cable and one four-foot operating cable attached to a junction box where two switches are located, one for AC or DC current and the other for forward or reverse.

G. J. Badgley of Washington, D. C., is the manufacturer of the motor. He is a veteran of long experience in the construction of apparatus for the motion picture business. In 1909 he first developed the friction clutch principle that he uses in this motor and used it on a projector. Later in 1917 he applied it to a camera and now he is employing it in its improved status in a wild cinemotor after it has undergone extensive tests. It represents much experience gained throughout the many years of experimentation.

The Badgley Cinemotor mounted horizontally on an Akeley camera. The large knurled knob just above the tachometer is for turning the camera and motor by hand. Note the forward and reverse switch is easily accessible.

This writer obtained one of the motors that Mr. Badgley first built and took it into Northern Vermont during the latter part of this past winter. There he found it to be very practical under all weather conditions. Its performance was astounding.

Cine Finance of India to Seek American Cooperation

The new motion picture financing company set up in India proposes to send a British representative to the United States to study the American motion picture industry and contact American producers of motion picture equipment, according to a report from the American Consulate at Bombay made public by the Department of Commerce.

The new company, called the Cine Finance and Banking Corporation of India, Limited, also will seek American technical cooperation in connection with its projects, through the visit of its British representative to the United States, the report said.

The new Indian company has an authorized capital of $3,480,000 and has arranged an ambitious program for financing and servicing the motion picture industry of India.

No direct competition with existing companies is contemplated by the new company. Under present plans it proposes to organize independent companies to handle the industry's problems in connection with production, distribution, publicity, equipment purchases, effecting insurance, and training technicians.

The gross income of the motion picture industry of India was estimated at $31,320,000 in 1938.

There are in India, according to the report, 996 motion picture theaters, 500 touring cinemas, 75 active film companies producing 200 features annually, and 253 distributors handling Indian and imported pictures.

La Casa Movie Makers

Over a hundred members and guests attended the April meeting of La Casa Movie Makers of Alhambra. The feature of the evening was the awarding of the prizes for the spring uncut film contest.

The winners were as follows: "Yellowstone National Park," in color, by Mr. Ritter, first prize, 16mm.; "Yosemite National Park," in black and white, by Mr. Moore, second prize, 16mm.; "Easter Pictures," in color, by Mr. Gaylord, first prize, 8mm.; "Skiing," by Mr. Winchester, in black and white, second prize, 8mm.

A timely talk with color stills was given by Mr. Korna on "Photographing Wild Flowers." Miss Turnbull showed some interesting shots of England which she made on her recent trip abroad.

In the May meeting Mr. Battles will show his feature film, "Our Glorious West." This three reel film was made on a recent visit to fourteen of our Western national parks and is filmed entirely in Kodachrome.

R. A. BATTLES, Publicity Chairman

Establishes Color Department

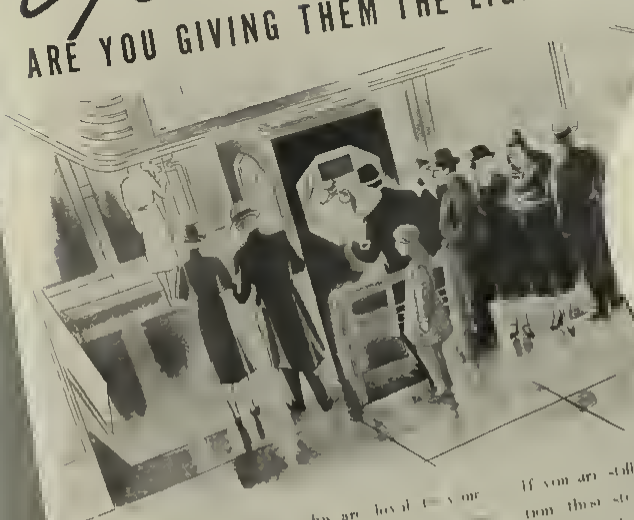
Willoughbys in accordance with its long established policy to incorporate and pioneer any development in photography has now established a complete and separate Color Department in its store.

It will have in its department two color experts who will be glad to answer questions regarding the use of all types of color material in a camera. They can offer movie, still transparencies, and color print service by any of the standard available methods.

Farciot Edouart of Paramount Studios has been appointed to represent the Research Council of the Academy on the "Sectional Committee on Motion Pictures" of the American Standards Association.

Your Customers!

ARE YOU GIVING THEM THE LIGHT THEY MERIT?



BETTER LIGHT BRINGS BETTER PATRONAGE

Theater patrons repay improved quality of projection by increased attendance. One theater manager reports one third more patronage since adopting high intensity projection. This benefits the studio as well as the theater.

The studio can also profit from favorable response to the improved quality of production which results from the use of carbon arc lighting on the set.

NATIONAL CARBON COMPANY, INC.

● You have many patrons who are loyal [illegible] theater who return again and again rather than [illegible] elsewhere. This steadfast patronage may be due to convenient location, to the programs you select or even to personal friendship but whatever the motive these patrons deserve recognition.

ARE YOU REPAYING THIS LOYALTY WITH THE QUALITY OF PROJECTION IT MERITS?

If you are still using old-style low intensity projection these steady customers have a right to expect. And soon they will. Simplified High Intensity projection gives so much more screen vision and accurate color reproduction. Many satisfactory level of general illumination. Do not let patrons know the for thousands of theaters have already installed it.

The rest is surprisingly [illegible]

YES, BUT WHAT WILL IT COST?

Ask your dealer's salesman for the booklet.

SIMPLIFIED High Intensity PROJECTION WITH "NATIONAL SUPREX" CARBONS

ECONOMICAL AND MODERN

NATIONAL CARBON COMPANY, INC.
Unit of Union Carbide and Carbon Corporation
CARBON SALES DIVISION CLEVELAND OHIO
General Offices 30 East 42nd Street New York N Y

'DOCUMENTARY FILM' HAS GENUINE INTEREST

Documentary Film. By Paul Rotha. New York: W. W. Norton & Company, Inc., 70 Fifth Avenue, publishers. Printed in Great Britain. Pp. 320, 91 Illustrations. $3.75.

TO the constantly growing throng interested in the documentary here is a book for the library table. It is written by an Englishman, one of the founders of the active British group of documentalists, and it was printed in Great Britain. Yet "Documentary Film" in seeking "the first serious deviation from the box office formula" cites an American production as the foundation of that division of the motion picture that seemingly so far has just scratched the surface of its coming power.

It was Pathe which in 1920 created such a furore in the theatrical world by distributing "Nanook of the North," a non-theatrical entertainment of the most perfect example. It was the story of an Esquimo family fighting for life in the bleak North, battling for food and shelter. Robert Flaherty's new-fangled picture struck the ground from under the feet of many successful motion picture men in their insistence that if you gave the public any screen show without a love story in it it would be exhibited to empty seats.

It was the recent American nation wide success of Pare Lorentz's government-made "The Plow that Broke the Plains" and "The River" that is referred to in the opening of the publisher's announcement on the jacket of the book. It declares these pictures brought with them a sudden awareness in the American public of an entirely new art form, quite distinct from the entertainment of "story" film, and based on a new conception of the role of movies in modern life.

Wide Interest Here

The author in his foreword writes that the success of these films, together with the regular issues of "The March of Time," has now created a wide interest in the documentary film in the United States.

Paul Rotha speaks with authority on the documentary film. Not only is he one of the founders of the group behind it but he is one of the foremost makers.

There is a meaty preface by John Grierson, of wide experience in the making of documentaries. "In the documentary uses of the radio and the film," he writes, "we saw new ways of educating public opinion in a democracy. They were dramatic and popular media. They had within them the magical powers of comprehension we sought.

"They were capable of establishing a continuing living contact between the individual and the vast drama of giant forces in which he too inconsequently wandered. . . . It is possible that we have been beaten by events, and that the giant forces, for lack of comprehension, have got out of hand. Today the stage is given over to a drama of religious manias—of fascism and communism and saving the world for this and that—and there is little respite for public education as such . . .

"The documentary film must pursue, in the deepest sense, the way of education, and long-distance education at that, or it loses its special claim to consideration. I should hate to see an instrument which we have spent a good deal of our time helping to forge used finally to destroy the sane things of common observation. But that is the danger."

The author in his foreword says his aim is to convey something of the social and economic basis upon which a certain method of film making—"that which we have called 'documentary'—is now being built to fulfill certain purposes at this moment of political apprehension and social disintegration."

He disavows any thought to decry or limit the functions of the cinema as entertainment. But he insists the story-film is only one kind of film. And he submits "that the technical and cultural achievements of the cinema of the future are more likely to come from the field of documentary and journalistic film than from the studios of entertainment."

Industry Supporting

Mr. Rotha emphasizes the fact, which he declares to be significant, that it is primarily the industrialist and the government official and NOT the educationalist who today are making possible the development of the cultural film by providing the all-important means of production. He adds:

"Ostensibly serving the needs of propaganda or, if you prefer it, furthering the aim of public relations, documentary is at the same time fulfilling a definite instructional purpose. It is being enabled to do so by the financial resources of industry and commerce, an aspect of education and propaganda that is worth considerable contemplation."

Illustrating the expansion of the documentary film in Britain, the author cites the growth of the original E. M. B. unit, from one small cutting room in a back room to six production units, with an advisory body and a documentary film workers' association, comprising over fifty members.

Attention is called to the fact that at a time when there are without counting actors more than 8000 film workers unemployed there is a big schedule of documentary films for the present year.

In New York City there is now an American Film Centre working in relation to the parallel body in London. Also on the western side of the Atlantic several film units seriously are tackling the problem of maintaining a continuity of documentary production.

In the introduction to "Cinema" chapters are devoted to Social Aspects, Economic Basis and Commercial Development, Propaganda, Film as an Art, and Documentary. In the evolution of Documentary four traditions are cited, the Naturalist (Romantic), Realist, News-Reel and Propagandist. The latter section is divided between the Soviet, British and German and Italian.

Chapters are given to the Documentary in the Making, i. e., the functions of the producer and the director. Also much space is devoted to the visual, to sound and to treatment. There is an extensive appendix of documentary directors and their principal films.

Air Corps Sends Officer to Coast for Lab. Experience

Chester L. Tobias, superintendent of the laboratory of the motion picture division of the air corps of the United States Army, Wright Field, Dayton, Ohio, arrived in Hollywood the last week in May to commence a sixty-day course of training in motion picture laboratory procedure under the auspices of the Research Council of the Academy of Motion Picture Arts and Sciences.

This short course of training in laboratory work was undertaken by the council at the request of Major General H. H. Arnold, chief of the air corps, and is an extension of the War Department-Research Council cooperative officer training program under which selected Signal Corps officers are sent to Hollywood for training in motion picture production.

Captain Dwight L. Mulkey of the Signal Corps is also in Hollywood at this time, studying all phases of motion picture production.

In Foreign Countries Few Simple Tools Are Adequate

By JULIEN BRYAN

Famous in Statecraft, Oratory and Photography

Julien Bryan

SOMETIMES I am asked to tell how I do my candid-camera work under difficult conditions in foreign countries—to "reveal" what tricks or special equipment I use.

As a matter of fact, I have no tricks or unusual gadgets. Indeed, I carry fewer accessories than many amateurs, perhaps fewer than any other professional movie-maker. I find a few simple tools adequate.

Too many would put needless technical preoccupations between me and the simple human stories I wish to tell. To my mind, the prime requirement for taking interesting pictures is a purpose. Arty pictures are too often a mere consolation for aimlessness.

The amateur should remember that he does not see the professional's average work, but only his best. In covering seven large countries of Europe and Asia I have taken nearly half a million feet of motion pictures and more than 30,000 Leica negatives.

Theme Is People

These are only the crude raw materials from which, after weeks of pruning and editing, I have left the few thousand feet of film I show with my lectures. Not many amateurs are ruthless enough in leaving out all but the best of their pictures.

Since my theme is people, before I visit an obscure mountain tribe or a great modern nation I study the people's historical background and customs. Above all, I try to learn what they consider good manners and then am careful to observe their code. For good manners, no matter how unlike our own, mean unobtrusiveness, and this is an important secret of successful candid-camera pictures. This is true whether the pictures are of statesmen, peasants, or children.

On my longest expeditions I carry three Eyemo motion picture cameras, each with 100-foot magazines, made by the Bell & Howell Company of Chicago. Two of these cameras are always ready for instant use; the third is safely stowed away in reserve.

I take two tripods, one Bell & Howell Special and one lightweight model suitable either for motion pictures or for time exposures with the Leica. I carry only four lenses, all Taylor-Hobson-Cooke: an f:2.5 47mm., an f:3.5 35 mm., an f:4.5 150mm, and the new f:1.3, the latter used only for extremely bad light conditions.

I have selected the Eyemo motion picture camera because it combines minimum size and weight with maximum precision, stands hard knocks, and can quickly be removed from the tripod for candid closeups

Though most of my footage in recent years has been shot from tripods, that taken on the run with my Eyemos contains many of my most prized documentary scenes. They never could have been obtained if the outfit had been more cumbersome.

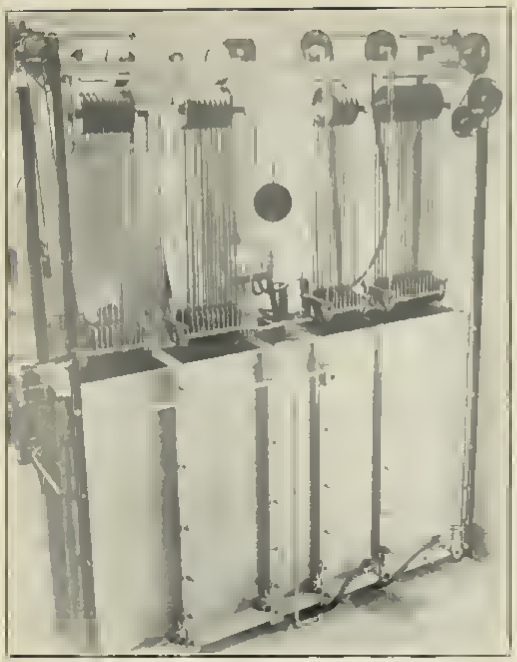
Telephoto Seldom Used

The use of the telephoto lens (i. e photography through a telescope) is an accepted practice among explorers; but I use the 150mm. lens only when obstructions prevent my approaching the subject. Ninety-nine per cent of my closeups were made really close to the persons, often within three or four feet.

With this method, of course, you must be on cordial terms with the people you are photographing. Half-wild tribesmen must sincerely trust the stranger before they permit him to bold up to their faces a weird whirring machine that stares at them with unblinking eyes.

Often I have spent days living with

(Continued on Page 278)



Wet end of Fonda Machinery Company's 16mm. developer with film raised out of tank

Front view of 16mm developer showing dry box and blower equipment

FONDA 16mm. DEVELOPER NOW READY FOR MARKET

THIS magazine in February last printed pictures of the 35mm. developer manufactured by the Fonda Machinery Company of 8928 Santa Monica boulevard, Los Angeles. On this page we are printing a picture of the firm's 16mm. developer, a reproduction of the machine as it stands on the floor of the company's factory.

A duplicate of this equipment has for three months been in operation at the plant of Modern Movies, Inc., 6018 Fountain avenue, Hollywood, so successfully that the first break in live film has yet to occur.

In this result the Fonda company sees vindicated the accuracy of the principles of its new drive.

This new driving principle is frictional. The film passes through the tanks and dry box with a soft, even tension which cannot be relaxed or increased. This tension is adjustable by increasing or decreasing the tension of stainless steel springs, and when these springs are once adjusted they do not again have to be changed.

The machines handle scored 16mm. stock as successfully as plain, and it has been shown in practice that at the same cost two and three-quarters times more work can be processed through this equipment than through rack and tank, to say nothing of the quality of the finished product.

The company has achieved great simplicity of design and reduced maintenance costs materially.

The 16mm. developer is economical in its area requirements, the machine being accommodated in a space 6 by 10 feet

Eastman Adds Conveniences to Its Kodascopes EE and G

Numerous features have been added to the Kodascopes EE and G, to make the operation of these two 16mm. projectors even more convenient, Eastman Kodak announces.

An improved hinged film gate makes threading and cleaning easier. A convenient lamp adjustment simplifies centering of the lamp in relation to the optical system. A new finger-tip control assists accurate framing.

A carrying handle is provided at the top of the projector, making for convenient transportation. And a new heavy duty motor in each projector provides ample reserve power, to compensate for voltage drops during peak loads.

The Kodascope EE, Series II, including 2-inch f2.5 lens; one 400-foot reel, oiling and splicing outfits, but no lamp, retails for $53. The Kodascope G, Series II, including 2-inch f.1.6 lens, one 400-foot reel, oiling and splicing outfits, but no lamp, retails for $118.

New York 8mm. Club

The April meeting of the New York Eights was featured by a film made at the Ice Follies at Madison Square Garden by Member Newton on Superpan Film. The effects secured led the members to hope that this fast film would soon be made available for general amateur use.

Other films included Mr. George Baer's "Spring Fever," an exchange from Washington, and Randolph Clardy's "Vida Pacoime," shown through the courtesy of the American Cinematographer.

Central Issues Catalogue

The Central Camera Company of 230 South Wabash avenue, Chicago, has issued a 64 page catalogue of closely packed matter printed on pages 6 by 9 inches.

MAKING THE CANNONS ROAR! *And How!!*

Mixing music with dialogue for "Ritual of the Dead"

An Amateur's Experiences with Home Recording

By RICHARD H. LYFORD

LET'S turn back the clock—a decade and more. In a private home a small group are hubbling over with enthusiasm and curiosity—their host has just asked them to see some of his own home movies! They see shots of his family parading in the back yard—they shout with laughter as they recognize one of their friends making faces at the camera.

But today it is a common thing to ask your friend to run off his latest beach pictures and in turn invite him to see your new National Park film. The idea of taking your own movies—keeping a photographic record of your children, your friends, your vacation trips, has spread in leaps and bounds.

However, today's enthusiastic amateur is becoming discontented with just "shooting things that happen to be there." He wants to be creative. He is in constant search for new locations, situations, ideas to capture with his lens. He is extremely interested in shooting a scenario picture. When his film comes back from development, if he hasn't his own laboratory, he turns to his editing board, striving to make his splices spell continuity. He wants the proper cutting, consistent exposure, artistic titles—a self-explanatory film that would interest any visitor no matter what the subject might be.

But above all, he has a burning desire to have his picture accompanied by sound!

By purchasing or building your own dual turntable sound system and selecting the proper semi-classical and symphonic music to fit the various moods of your films will make them a hundred per cent smoother and more entertaining. The next step, of course, is making your own "talkies."

My first experience with sound and "talkies" was in 1933. The R.H.L.-National Picture Company of Seattle was about to start "The Sea Devil"—its third epic . . . a feature-length film . . . and "all talking"!

I got the idea of filming a World War story after reading Count von Luckner's popular book, "The Sea Devil," but by the time I completed my script the two stories were as much alike as day and night.

Count von Luckner, The Sea Devil, was a clever, cheerful German naval officer who sailed the seven seas in a secretly fortified sailing ship disguised as an old Norwegian square-rigger.

He made it a point to sink only the ships that were obviously aiding the enemy. He would first cripple the enemy ship—then order its crew to take to the life boats before he sent her down to Davey Jones. By this method he brought about his amazing record of never killing a person during the World War.

Count von Richter, The Sea Devil (the Lyford version), played by yours truly, wasn't content with an old wooden ship—he used a racey submarine and raised hell in every cubic foot of the North Sea!

Real Dripping Melter

With beads of sweat dripping from his brow, his eye glued to his periscope, he would scan the horizon for prey. When approaching an enemy ship he wouldn't give its crew time to find out how cold the water was.

They generally were blown skyward with everything but the keel.

But he finally met his Waterloo—in the burning hold of a ship—with a sabre jammed in his ribs. Gasping for breath and writhing on the floor, he fought for life. Not a life of insane plundering, of human butchery, but a desire to see once more his almost forgotten companion—his young, attractive wife. As she was baking a cake to celebrate his arrival home he sank with his ship—with her picture crushed to his scarlet breast.

This type of picture called for one thing in particular—sound, and plenty of it! My first step was to purchase an obsolete DeVry 16 mm. disk-sound projector and an old George Givot musical review. I ran the film again and again and, the synchronization being perfect, I was thoroughly satisfied and decided that was the system I would use.

My next intention was to connect my Eastman Model B camera, by means of a flexible shaft, to a turntable, with cutting head, etc., and drive both units with one synchronous motor. Each scene was to be cut on acetate as they were filmed—then timed and redubbed with musical score and added sound effects on a master disk.

I anticipated the finished production to consist of five 400 foot reels filmed at 16 frames a second and five 16 inch acetates recorded at 33 1/3 r.p.m. But the unexpected cost of my disk-sound projector, plus what it would cost for more necessary equipment, brought about one conclusion.

I could either have sound with no picture—or the picture minus the sound. I chose the latter, deciding to shoot the picture silent—then dub the dialogue in later when I could afford the proper equipment.

Box Office Boomed

Two years later, "The Sea Devil," three-fourths complete, was accumulating dust on a shelf. My sound system

was still—"just a dream." We then filmed several other short photoplays, one a semi-festure, and I had to be satisfied with written dialogue and for sound just a musical score played on a dual turntable setup.

Since 1924 my little bssement theatre had built up quite a reputation in the neighborbood. Our shows had climbed up from one performance only, to an averege four-week run, three nights a week, in order to handle the spectators.

I decided several times to cut up "The Sea Devil," add titles and run it as a "silent." But since 1933 our growing number of customers had been reading signs hung in the "lobby"—"Coming Soon. The First All Talking R H.L.-National Production. A Thrilling Epic of Submarine Warfare on the High Seas! 'The Sea Devil.' Battle Scenes Galore! Don't Miss It!"

In the latter part of 1936 we finished shooting the final scene for our war epic. It was at last complete, but "silent."

Two weeks later the theatre was sold out for the opening premier of the biggest event in its funny little history. I plastered colorful posters all over the walls. "At Last—It's Here! Tonight! Four Years in the Making. 'The Sea Devil.' Feature Length—A Talking Picture!!" The audience came early. The theatre was packed with sixty-seven curious people. "I bet the sound is scratchy." "I wonder how Barbara's voice records" (referring to Miss Berger, the lesding woman.) "I'll bet the voices don't keep up with the chsrscters. Ha, ha."

What a Noise!

At 8:15, after opening the program with a Seattle Shrine Convention picture which I had filmed in color the summer before, the footlights dimmed, the audience quieted down. As the curtain slowly parted, a dark underwater scene of a fleet of U-boats, like ghosts, slipped past the screen (miniature). A sudden burst from Wagner's "Ride of the Valkyries" boomed from the speaker as the title "zoomed" into view—"The Sea Devil."

For an hour and five minutes the audience along with the picture heard the hum of Diesel motors, the "wooish" of torpedoes, the shouting of commands, the driving of airplanes, the screech of struts and wires, the rs-tat-tat of machine guns, the crack of shrapnel, the rumble of depth bombs, the whistling of wind, the roar of cannons!

When Von Richter and his wife appeared together the voices were softly accompanied by the beautiful strains of Sibelius's "Finlandia." When Von Richter coughed and choked to deatb toward tbe end of the film tbe pounding of Liszt's "Les Preludes" filled the air. Everything was perfectly in sync. Tbe only complaints were that there was too mucb sound!

After the show several friends asked me what make of sound projector I used. Pondering a moment, I replied that it was made special—custom built.

Held Over, Anyway

Personally "The Sea Devil" was a bit ahead of its time. It was too big an undertsking for what little experience we had gained. The continuity suffered badly in spots and many of the scenes were extremely amateurish. However, a prophesy had been fulfilled. The picture was held over for five weeks.

But few people ever knew the facts of what went on behind the steel garage door which was marked, "Projection Booth. Keep Out!" About the third week a very good friend of mine who had seen the film from the theatre side several times, finally talked his way into the sweat box to watch how the sound was operated.

By the time the show ended he was a nervous wreck from trying not to burst into hysterics. It must have been a funny spectacle to an outsider.

Fastened in front of the projection lens was a piece of plate glass which was tilted at an angle, reflecting the image backward on to a special "dubbing screen" in the booth as well as allowing the film also to be projected perfectly.

Running along one end of the booth (which was the family garsge) was a row of tables. At one end was the sound system—amplifiers, mixing panel, three turntables and pick-ups.

On down the "line" were piled records, hammers, glass, pipes, electric fans, sheets of aluminum, sticks, boxes, bottles, barrels, oil drums, light switches, cable, extension plugs, wire, glasses of water, celophane, gadgets and apparatus.

A crystal microphone stood on a stand in front of tbe tables. The whole set-up looked like a crackpot's paradise.

Here's Real Lowdown

During the show the turntables were going all the time, playing numbere I had selected specially to fit the various sequences. When the time came for a character to speak he stepped up to the mike, watched the screen, and dubbed in the lines. The airplane noises I made with my throat—tbe machine guns with my tongue—the wind and waves by whistling through my teetb.

For an hour and five minutes we pounded bammers on pipes, banged sheets of aluminum, kicked oil drums, broke glass, clacked telegraph keys, turned on fans, electric motors, creaked orange boxes, wrinkled celophane. The whole thing had to be rehearsed again and again. It was like making s broadcast or giving a stage play, only worse! If one member of the cast got the hiccoughs—well, need more be said?

However, so far as the audience was concerned, they had witnessed the first feature length 16 mm. talking picture ever to be made on an amateur basis.

Shortly afterward my "dream" came true. "Ritusl of the Dead," a psychological crime film, was successfully recorded on acetata discs. It was really our second talking picture, but technically our first.

This film encouraged me to make two othere, "In Search of Adventure" and our second feature length picture, "As The Earth Turns," whicb both had musical scores and sound effects, but no spoken dialogue.

But "Ritual of the Dead" is by no means one of tbe few amateur sound films. Amateurs the country over are experimenting with their own recordings; Dr. Robert Loscher's "Red Cloud Rides Again," a past A.S.C. contest winner; Herb Chrisler's "The Bloomin' Mountain," and Randolph Clardy's new production, employs the use of acetates.

Yesterdays obsolete Vitapbone disk systam bas been born anew in today's drive for an economical method of home recording by the amateur enthusiast.

Tbe weird strains of "Bluebird" built up this tomb scene from "Ritual of the Dead"

Filtering Arcs for Matching Quality in Monochrome

By CHARLES B. LANG, Jr. A.S.C.

Charles B. Lang, Jr., A S.C.

THE idea of using arcs, either alone or in combination with incandescent lamps, for lighting black-and-white pictures is nothing new. A dozen or more years ago, when panchromatic film was being introduced, the industry worked on a 100 per cent arc basis; the "inkies" were developed largely as a result of the introduction of panchromatic film, and came into general use because for most purposes the warmer light of the Mazda globe gave better results with panchromatic materials.

Ever since then, cinematographers have to some greater or less extent been making use of arc equipment for special lighting effects in monochrome films.

This is natural, for there are some types of lighting for which the arc is the only really satisfactory tool. Where, as in most cases, we want the light to have a soft and not overly directional quality, the incandescent is by far the best, especially since its color coordinates well with the color-sensitivity of modern panchromatic emulsions, and modern make-up has been planned with this lighting in mind.

When Arc Is Preferable

But for more strongly directional effects, as when we want strongly defined shadows or very positive highlights, to simulate direct sunlight, the arc is preferable. The light source of the inkie is relatively large, often several inches square.

The light source of a high-intensity arc spotlight, on the other hand, is small. It is confined largely to the incandescent crater of the carbon, and is as close an approach to the theoretically ideal "point-source" of light as we can get.

So for at least a dozen years cinematographers have mixed arcs and inkies according to the effects desired.

Unfortunately the matter is not as simple as it might sound. In addition to the differences in directional qualities between arcs and inkies, we have also differences in color. The Mazda is a fundamentally yellowish-white light. The arc is inherently bluish.

Thus with film and make-up coordinated to the spectral distribution of Mazda lighting, the beam of an arc acts essentially like a blue filter upon everything upon which it falls, taking us back from panchromatic to orthochromatic rendition.

Faces, especially, are affected: skin-textures take on an unnatural, muddy gray tone, while lips go too dark, a condition which can hardly be tolerated where scenes made under different light sources must be intercut.

Old Type Arcs Too Blue

During the past few years a great deal of development has taken place in arc lighting units. Much of this has been due to the demands of the Technicolor process which, as is well known, calls for lighting closely matched in color to normal daylight.

The old-type arcs were much too blue for this purpose. Many of them lacked also steadiness and uniform light distribution within the beam. Therefore improved arcs were developed for Technicolor use, much better both mechanically and optically, and in addition engineered to give light more nearly matched to the daylight standard—in other words, to give light that was less blue.

None the less, for a perfect match with daylight, a blue-absorbing gelatin filter is needed for the high-intensity arc spotlights.

At the same time, special auxiliary lens-systems, fitted with adjustable iris diaphragms, have been developed to aid in getting sharply defined spot effects with these lamps.

When I was assigned to photograph Paramount's "Zaza" it was evident that I would have to use some of these units to simulate theatrical spotlighting in the several music-hall sequences. Yet I was by no means satisfied with the rendition an arc key-light would give me in close shots of my star.

Obviously, it would be necessary to filter the arcs to conform with the existing standards of film-sensitivity and make-up, already keyed to the Mazda standard. But how?

Trial and Error

Ordinary straw-colored filters were tested and proved inadequate. They did not correct enough. Yellow and amber filters gave an unduly muddy effect and lightened skin-textures too much.

Finally it occurred to me to inquire what Technicolor used for the purpose. It proved to be a special gelatin termed

the "Y-1" filter. This showed definite promise; but a single "Y-1" did not eliminate quite enough of the bluish emanation. Perhaps several would.

Retaining Sharpness

Further tests showed that this was the case. Using several of these gelatins over each arc employed, I found I could match the color of the light almost perfectly to that of the Mazdas lighting the rest of the scene, while at the same time retaining the "sharp" quality of the arc beam.

Actual production experience indicated that the best results come as a rule from using from two to four "Y-1's" on each arc

Perhaps the best individual closeup of Claudette Colbert in "Zaza" was lit with this combination of Mazdas for general lighting, and a modern, high-intensity arc, filtered with three "Y-1" gelatins, for the key light. It was the closing shot of the picture. It was a theatrical spotlight effect, and conditions made necessary the use of three cameras with lenses giving angles that ranged from a long shot to an extreme big-head close-up.

With this combination I kept the desirable optical quality of the arc beam and at the same time obtained a pleasingly normal rendition of face and lip textures.

Since then I have found the combination of modern high-intensity arc spotlights and "Y-1" gelatins increasingly useful. In photographing "Midnight" I employed this type of lighting quite extensively on exteriors, for both day and night effects

They are excellent for creating natural-looking shadow effects when you are working in heavy shade, as for example under trees. They can be matched so well with sunlight that they virtually bring the sunlight in under the trees.

In this picture there were quite a few sequences — normal daylight effects as well as night shots—to be photographed outdoors on the "Paris street" of the back lot. They were scheduled during a period when the sun was, to say the least, uncertain; it might appear for twenty minutes and then hide behind a cloud for five hours.

Sun by Proxy

Rather than subject the company to these expensive delays waiting for natural light, I decided to film the sequences entirely by artificial light. Canvas covers were rigged above the set, and arcs, filtered as necessary with "Y-1 [illegible] set to replace the sun

This enabled me to keep on [illegible] regardless of the natural light [illegible] tions, and in addition kept my [illegible] lighting constant for as long a period as I needed. By this method we made several apparently sunlighted sequences when it was actually raining outside [illegible] covered set!

The degree of filtering on the [illegible] could be varied to give any effect desired, from the colder beams used [illegible] night effects to the warm beams for normal effects. And, unlike natural light, one could be confident that the color of the light would be constant all day.

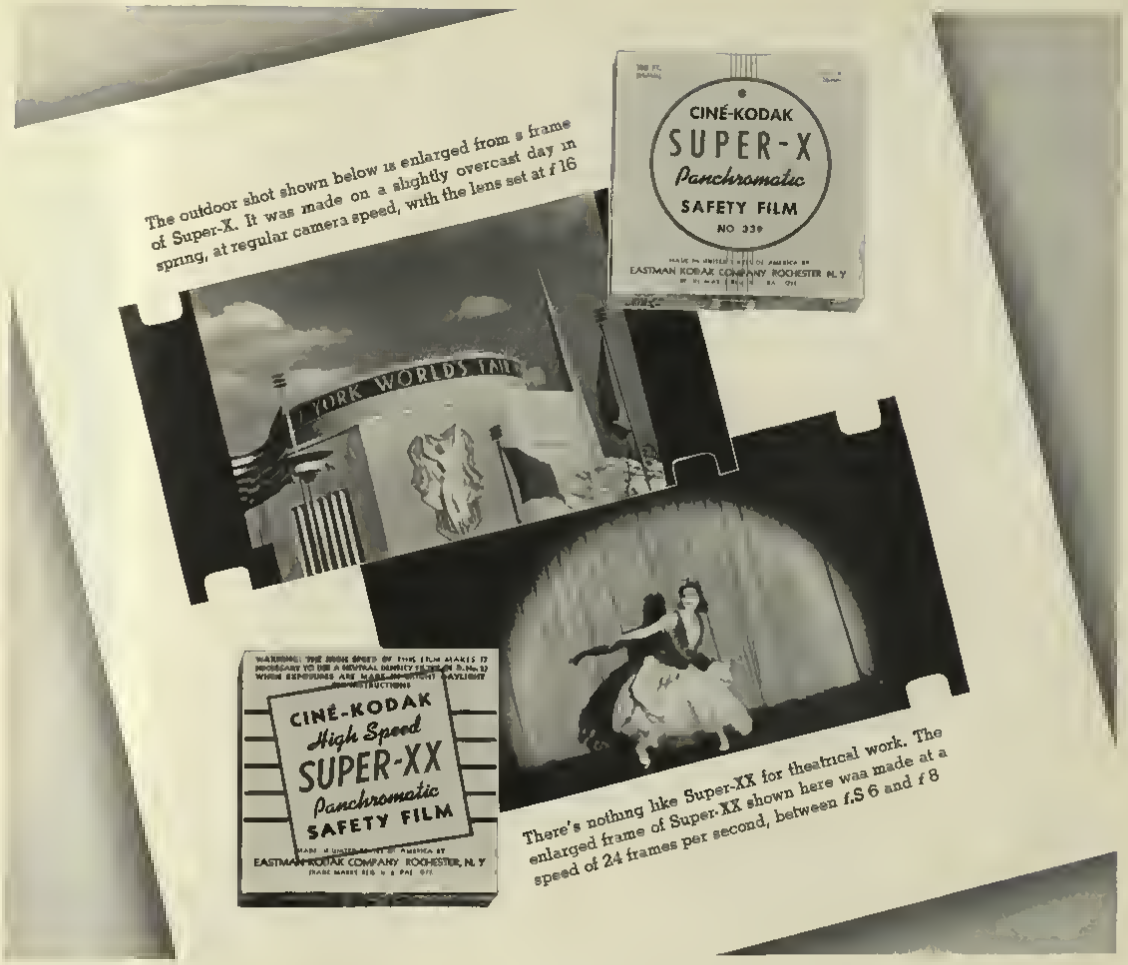
In my present picture, the melodramatic "Cat and the Canary," filtered arcs are again useful, in both interior and exterior scenes, for producing the dramatic lighting effects suited to the mood of the action without sacrificing facial rendition.

As I stated at the start, there is nothing particularly new about mixing arc and incandescent light in monochrome cinematography. But I am informed that little if any use has been made of the possibilities of filtering arcs to correct their spectrum.

I have personally found it to increase the scope of monochrome arc lighting considerably, and I believe others may as well. With this in mind I have tried to point out some of the advantages of the idea, hoping that it may be helpful to others as it has been to me.

Officers of the National Photographic Dealers' Association are shown as they visited the Ford Exposition at the New York World's Fair while attending the association's sixth annual convention in New York.

Reading from left to right are Percy Y. Howe, treasurer; Laurin P. Marlowe, vice president; Charles Bass, president; Henry W. Lawrence, secretary, and H. O. Bodine, executive secretary. Mr. Bodine and Mr. Howe are New Yorkers, Mr. Bass is from Chicago, Mr. Lawrence from Wichita, and Mr. Marlowe from Dallas



The outdoor shot shown below is enlarged from a frame of Super-X. It was made on a slightly overcast day in spring, at regular camera speed, with the lens set at *f* 16

There's nothing like Super-XX for theatrical work. The enlarged frame of Super-XX shown here was made at a speed of 24 frames per second, between f.S 6 and *f* 8

MASTERY... In these two truly great 16 mm. films—Ciné-Kodak Super-X and Ciné-Kodak Super-XX—the modern movie maker has mastery of every movie opportunity.

There's a new richness in black-and-white quality in these films, a new sparkle and clarity.

Super-X, intended primarily for outdoor work, has unprecedented brilliance, fineness of grain, and beauty of tone quality. It has speed, too, fully equal to that of the famous "SS" Pan.

But if it's speed you want, Super-XX is your film. Super-XX is designed definitely for work by artificial light, and gets along with amazingly little of it. Outdoors, in full sunlight, overexposure is certain, at even the smallest home movie camera lens apertures, unless a neutral density filter is fitted to the lens.

Put a supply of each of these films in your movie kit. Rest assured, then, that you're in command of every filming opportunity that comes along.

Ciné-Kodak Super-X and Ciné-Kodak Super-XX are both available in all standard 16 mm. lengths—200-ft. rolls (from Rochester only), 100-ft. rolls, 50-ft. magazines, and 50-ft. rolls.

EASTMAN KODAK COMPANY, ROCHESTER, N. Y.

WHEN SHOPPING FOR A CAMERA . . .

By JAMES A. SHERLOCK

THE purpose of this article is to help the intending buyer select the camera most suitable to his needs. Following are details of various silent cine cameras, ranging from the humble but efficient 8mm. fixed focus single lens camera to the 16mm. camera which is capable of photographing any subject equally as well as most standard silent cameras.

For the person who has not used a camera of any kind, a new or second hand movie camera of good make with one lens (either fast or slow) of a high grade quality is recommended. For the movie addict the market is limited only by the size of both his pocket and enthusiasm.

Cine cameras by well-known makers do not get out of date quickly, and used cameras can be recommended if purchased from a reputable dealer. If a second-hand camera has been bought without an instruction book, a letter to the makers will be sufficient to have one sent you.

There's No "Best"

Many times the question has arisen "Which is the best camera?" The answer to this query is easy. There is no "best camera," but there might be a camera that would best suit the individual buyer, and a study of the chart attached to this article might help.

"A 16mm. or 8mm.?" camera is a question harder to answer. The 8mm. camera has been developed to such an extent that almost every gadget that is to be found on the larger camera is incorporated.

When 8 mm. film is correctly exposed and a good high-powered projector used, the pictures may be enlarged to 6 feet by 4 feet 6 inches, a much larger image than is required for the average home, but one that can be shown to about 200 people. Pictures larger than this are not recommended, but smaller pictures are almost equal to 16 mm. in quality and the camera is less conspicuous to use and lighter to carry than its big brother.

Further limitations of the 8mm. system is that sound cannot be added to the film. It is harder than 16mm., to edit, also owing to the tiny viewfinder picture composition is difficult and distant views shot with Kodachrome are to be avoided, if a large picture is to be projected. However, closeups and medium closeups with this film are excellent.

Clardy Did It With 8mm.

R. B. Clardy won the photographic award in the 1938 "American Cinematographer" Contest with an 8mm. Kodachrome film, and William Stull, A.S.C., wrote of this cinesmith's film as follows — "Enlarged frames from any of its scenes would be worthy of hanging in any of the world's great still camera salons."

Congratulations, Mr. Clardy, this and the two grand prizes you have won in earlier contests prove to the world that this gauge of film is a serious rival to 16mm., and if handled by an artist is capable of producing pictures equal to the best.

There are 40 frames to the foot of 16mm. film and 80 frames of 8mm., which means that half the length of the smaller film projected at the same speed as 16mm., will take as long to show. Consequently, 50 feet of 8mm. film is equal in projection time to 100 feet of 16mm. and costs less than half.

Threading First Problem

When the camera is decided on and purchased the first difficulty is to master the correct method of threading the film. Each make of camera has a different system of loading, and a close study of your book of instructions will be necessary. With the exception of magazine loading cameras, every cine camera requires the film to be correctly seated in sprocket wheels and firmly held in claws which are placed near the gate of the camera.

A loop in the film is found to be essential on either side of the gate of the camera. The film, in passing from the top spool to the take-up spool, passes the lens, and at this point is stationary while the exposure is being made. Thus some play in the film is needed.

By using a strip of film and following the instruction book, the new movie maker will soon be adept at loading his camera and ready to shoot his first film.

Making Comparisons

The chart was compiled so that a comparison could be made between various cameras. The headings may not be familiar to the beginner, and the following description of the abbreviations should assist—

Width of Film Used—Only cameras for two sub-standard gauges are listed on this chart, viz. 8mm. and 16mm.

Speed of Lens Supplied—The speed of the lens is known by the largest aperture at which it can be actually used to transmit light to the film. The fastest one inch lens mentioned on the chart is F 1.4, the slowest F 3.5.

Other Lenses Available—For some cameras additional lenses can be purchased and are interchangeable, others can only be used with the lens supplied. Where the words "Full Range" appear, lenses of most focal lengths are available.

Visual Critical Focus—This means that while your lens is seated in the camera it is possible to look through it and focus for correct distances.

Adjustable Shutter—This is handy for fade-ins, fade-outs, or dissolves. It will be noticed that only two cameras are so equipped.

Shutter Opening—Means the time the shutter is open to expose each frame. This varies from 1/25 of a second to 1/35 of a second when a speed of 16 frames per second is being used.

Magazine Loading—Makes possible a quick change from one film to another in daylight. Film is loaded in magazines by the makers ready to place in the camera — hence the title "Magazine Loading." An easy method, but not as efficient as the usual system.

Turret Head—These cameras have two or more lenses mounted in front of the camera on a turret which permits instant change from one lens to another. Thus a long shot and closeup may be taken from one camera position.

Film Speed Per Second—The average speed for a silent film is 16 frames per second. For sound film 24 frames per second. Variations from these

	Width of Film Used	Speed of Lens Supplied	Other Lenses Available	Visual Critical Focus	Adjustable Shutter	Shutter Opening	Magazine Loading	Turret Head	Film Speeds per Second	Hand Crank	Reverse Action	Single Frame Release
AGFA—Movex 8 (1)	8mm	F 2.8	No	No	No	1/30	Yes	No	16	No	No	No
PAILLARD-BOLEX—H.	16mm	F 2.8	Full Range	Yes	No	1/30	No	Yes	From 8-64	Yes	Yes	Yes
H8	8mm	18mm F 1.9	Full Range	Yes	No	1/30	No	Yes	From 8-64	Yes	Yes	Yes
OITMAR—Optical Meter	8mm	½" F 1.6	Full Range	No	No	1/32	No	No	16 and 32	No	Partial	Yes
Photo Cell	8mm	½" F 1.6	Full Range	No	No	1/32	No	No	16 and 32	No	Partial	Yes
Optical Meter	16mm	1" F 1.6	Full Range	No	No	1/32	No	No	16 and 32	No	Partial	Yes
Photo Cell	16mm	1" F 1.6	Full Range	No	No	1/32	No	Yes	8, 16 and 32	Yes	Partial	Yes
EMEL	8mm	½" F 2.5	Full Range	Yes	No	1/30	No	No	8, 16, 32 or 16, 32, 64	No	Yes	Yes
EUREKA—Photo Cell (1)	8mm	½" F 2.5	Full Range	No	No			No	16	No	No	No
Electric	8mm	½" F 2.5	Full Range	No	No	1/32	No	No	8, 16, 24, 32	No	No	Yes
FILMO—134G, Filmo 8 (2)	8mm	½" F 1.4, 1" F 2.7	Full Range	No	No	1/35	No	No	16, 32, 48, 64	No	No	Yes
134F, Filmo 8 (3)	8mm	½" F 1.6, ½" F 2.5	Full Range	No	No	1/34	No	No	16, 32, 48, 64	No	No	Yes
134J, Filmo 8 (4)	8mm	½" F 3.5	Full Range	Yes	No	1/34	No	Yes	16, 32, 48, 64	No	No	Yes
121	16mm	F 2.7	Full Range	No	No		Yes	No	16, 24	No	No	Yes
70.E	16mm	F 1.6	Full Range	No	No	1/27	No	Yes	8, 16, 24, 64	No	No	No
70 D.A.	16mm	F 1.6	Full Range	Yes	No	1/27	(6) No	Yes	From 8-64	If Required	If Required	If Required
141-A	16mm	F 2.7	Full Range	No	No		Yes	No	8, 16, 24, 32	No	No	Yes
141-B	16mm	F 1.6	Full Range				Yes	No	16, 32, 48, 64	No	No	Yes
KEYSTONE—K. 8	8mm	½" F 3.5	{1" F 1.9 / 1½" F 2.7 / 1½" F 3.5}	No	No	1/32	No	No	12, 16, 48	No	No	No
A. 3	16mm	1" F 3.5	{1½" F 2.7 / 1" F 4}	No	No	1/32	No	No	8, 16, 64	No	No	No
A. 7	16mm	1" F 2.7	1" F 1.5	No	No	1/32	No	No	8, 12, 16, 24, 32, 48, 64	No	No	No
KODAK—Model 20	8mm	F 3.5	None	No	No	1/32	No	No	16	No	No	No
Model 25	8mm	F 2.7	None	No	No	1/32	No	No	16	No	No	No
Model 60	8mm	F 1.9	None	No	No	1/32	No	No	16, 32, 64	No	No	No
Model E	16mm	1" F 4.5	None	No	No	1/32	No	No	8, 16	No	No	No
Model K	16mm	1" F 3.5	Full Range	No	No	1/32	No	No	16, 32, 64	No	No	No
CINE KODAK MAGAZINE	16mm	1" F 1.9	Full Range	If Required	No	1/32	Yes	No	16, 32, 64	No	No	No
SPECIAL	16mm	1" F 1.9	Full Range	Yes	Yes	1/32	(6) No	{Two Lens Turret}	From 8-64	Yes	Yes	Yes
ZEISS—Movikon 8	8mm	{3" F 2.8 / 6" F 4.5}	Up to 3"	No	No	1/25	No	No	8, 16, 64	No	No	Yes
Movikon K. 16	16mm	5" F 2.2	Full Range	No	No	1/25	Yes	No	8, 16, 24, 64	No	No	Yes
Movikon Universal	16mm	1" F 1.4	Full Range	{Coupled Range Finder}	Yes	From 1/25 to 1/1250	No	No	12, 16, 24, 64	Yes	Yes	Yes
SIEMENS	4mm	½" F 2.9	Full Range	No	No	1/30	Yes	No	8, 16, 32, 64	No	No	No
SIMPLEX	16mm	1" F 1.9	Full Range	No	No	1/32	No	No	12 16	No	No	Yes
ENSIGN—Model 6. (1)	16mm	1" F 2.8	Full Range	No	No	1/32	Yes	No	8 16 64	No	Yes	Yes
Model 8 (1)	16mm	1" F 2.8	Full Range	No	No	1/30	No	Yes	8 12 16, 32, 64	No	Yes	If Required
VICTOR—Model 3	16mm	(6)	Full Range	No	No	1/30	No	No	8, 16, 24, 32, 72	No	Yes	If Required
Model 4	16mm	(6)	Full Range	Yes	No	1/30	No	Yes	8, 16, 24, 32, 72	No	Yes	If Required
Model 5	16mm	F 2.9	Full Range	No	No	1/30	No	No	8, 16	No	No	No
UNIVEX—A8	8mm	F 4.5	F 1.9 F 2.7	No	No	1/30	No	No	16	No	No	No
B8	8mm	F 4.5	F 3.5 Telephoto	No	No	1/30	No	Yes	16	No	No	No
C8	8mm	F 4.5										

(1) Not Available in United States. (2) Trade name Companion. (3) Trade name Sportster (4) Trade name Arstocrat. (5) External Magazine Available (6) Customer's Choice.

speeds either slow down the movement in the picture or speed it up — there are many uses for this refinement.

Hand Crank—Every camera on the chart uses a spring motor, only a few have hand cranks, which are mostly used to rewind film for fades, double exposures or dissolves. The spring motor is strong enough when fully wound to expose sufficient film for most scenes. But should a very long scene be required, the hand crank is used.

Reverse Action—If this is available, the film can be rewound in the camera.

Single Frame Release is necessary for animated titles or cartoons.

The following hints might be found useful, particularly to the beginner.

No camera is better than its lens.

Hasten slowly when loading the camera.

Don't change a film in bright light.

Run one foot of film before closing the camera to see that the loops are correct and that the film is seated as per instruction book.

Keep the gate and interior of the camera free from dust.

Watch the pressure plates. They sometimes collect emulsion from the film. To clean, use a wooden match.

Use oil sparingly, if at all. Your dealer is the best man for this job.

Your camera is a precision instrument. Treat it as such.

Leica Entries Close Aug. 15

The closing date for the receipt of prints for the coming Leica exhibit has been set for August 15. This gives every photographer ample time in which to prepare and submit his photographs to this show which in past years has been recognized as one of the most interesting and unusual events of its kind. The previous Leica exhibit attracted more than 64,000 persons during the two weeks it was on display in Rockefeller Centre, New York, and attracted proportionately large crowds in all the cities to which it was subsequently sent.

The rules for submission of entries are as follows: There is no limit placed on the number of prints submitted. Prints should not be less than 8x10 inches in size.

Lafayette Negative Files

The new LaFayette Negative Files introduced by Wholesale Radio Service Company, Inc., 100 Sixth Avenue, New York, while only about the size of an ordinary book, provide accommodations for up to 400 negatives (depending on their size) with complete protection against scratching or other damage.

Each file is equipped with 100 superfine glassine envelopes and two index cards on which numbered spaces provide for entering titles of 400 negatives in the corresponding numbered envelopes.

The files are available in three sizes: (1) for 35 mm. and Bantam film, (2) for vestpocket No. 127 size, and (3) for No. 120, 620 or 116, 616 negatives. The material is sturdy ¼-inch stock in one piece.

VERSATILITY ADDED BY EASTMAN COMBINATION

ANY camera user who wishes to make his equipment more versatile, by the gradual addition of accessories, will find the Kodak Combination lens attachments an ideal means to this end.

These attachments constitute a series of uniformly threaded units, each fitting the others, and all fitting an adapter ring which slips on or screws into the lens mount of the camera.

Each attachment unit is available separately. The adapter ring is the basic unit, and only one such ring is required to mount any combination of attachments on the lens.

An adapter ring and one filter retaining ring provide an ideal filter mounting. Filters can be interchanged readily, so the need of a metal cell mount for each is eliminated. All of the more than 100 Wratten filters are available cemented in "B" glass circles to fit these attachments.

Since individual cell mounts are unnecessary, the combination attachments effect a material saving when a wide range of filters is used—and this saving can be applied on other useful equipment.

With two filter retaining rings, filters may be used in combination if desired. A pola screen may be used directly on the adapter ring, or in combination with filters. Two pola screens may be employed at will. A Kodak Lens Hood (aluminum) may be used with the adapter ring alone, or with a filter, a combination of filters, and a pola screen.

Adapter rings are available to fit lens mounts from ¾-inch diameter to 2½ inches—a range which will take care of virtually any hand camera. Beginning with a single adapter ring and filter retaining ring, the camera user can build up, step by step, a kit of unlimited versatility.

New Kodak 16mm. Issued

Fast, extremely fine-grained, and possessed of other highly desirable characteristics, a new 16mm. film, Cine-Kodak Super-X Panchromatic, is announced from Rochester, by Eastman Kodak.

Advantages claimed for the new film are as follows:

Speed equal to that of Cine-Kodak SS Pan—double the speed of Cine-Kodak Pan; extremely fine grain; better definition, so that projected pictures appear clearer and sharper, especially to persons seated near the screen; improved quality, both in contrast and in the rendering of highlights; capacity to produce superior results, outdoors or indoors, under widely varying light conditions.

Exposure recommendations and filter factors for Cine-Kodak Super-X Pan are the same as those for Cine-Kodak SS Pan. The new film (not to be confused with the former 35mm. Kodak Super-X for miniature still cameras) is available as follows:

Cine-Kodak Super-X Panchromatic Film, 16mm., 100-foot rolls, $6; 50-foot rolls, $3.25; 50-foot magazines, $3.50; 200-foot rolls, $12; 50-foot packette for Simplex pockette and Filmo 121, $3.50; 10 meters for Kinamo S-10, $2.50. Prices include processing and return transportation within the country where the film is processed.

Kodak 35, f.3.5 model, with four units of the Kodak Combination Lens Attachments — adapter ring, filter retaining ring, pola-screen, and Kodak lens hood. Fewer units may be used at will, or others added as necessity dictates.

Edwin L. Dyer, A.S.C., Passes

AT his home in Sunland, Calif., Edwin L. Dyer, A.S.C., died the morning of May 23, at the age of 44 years. He leaves a wife, Bessie M. Dyer. Due to illness he had been inactive for the last year and a half.

Mr. Dyer was born in Muscatine, Iowa. When he was twelve years old he took up amateur photography while attending school. Three years later he went to work at the Balboa Studios in Long Beach, Calif., as an assistant in the laboratory at first and quickly being shifted to timing prints and doing developing. He remained here five years, being promoted to assistant cameraman.

From 1915 Mr. Dyer was with the Heart of America Film Corporation of Kansas City as cameraman photographing "The Mysterious Boy," a serial, later being placed in charge of the company's laboratory. From 1919 to 1920 he was news and industrial photographer for the Los Angeles Film Company, and then for four years he was cameraman for the United Film Company of Kansas City, producing industrial films.

Then for several years he was with the Andlauer Film Company of Kansas City making industrials, and with the News Photography and Productions and Motion Picture Service Company. He was expert in multiple exposure and double printing and was keen for keeping abreast of the most up-to-date methods.

Mr. Dyer remained with Motion Picture Advertising until 1932, when he joined the Jam Handy Picture Service Company of Detroit, with which concern he remained until he was compelled to relinquish his duties.

Aalberg Honored

John Aalberg, sound director of RKO Radio Studio and chairman of the Council's Standards Committee, has been appointed to represent the Research Council of the Academy of Motion Picture Arts and Sciences on the "Sectional Committee on Motion Pictures" of the American Standards Association.

ERPI STAGES SHOWS ON SOUND WORLD AROUND

A NEW sound system to be handled by distributors of Western Electric theatre equipment abroad was introduced to the motion picture industry in New York, Monday May 15, during a sales exhibition held by Electrical Research Products, Inc., at the Hotel Astor.

Simultaneously exhibitions were given in Havana, Mexico City, Rio de Janeiro, Buenos Aires, Santiago, Lima, Manila, London, Montreal, Singapore, Sydney and Wellington. This is the first time a new sound system has been introduced with simultaneous showing all over the world. Major points of advantage, embodied in the new system, according to the announcement, include more faithful reproduction and greatly increased power.

The new system is adaptable to theatres of any size or type and the design has been calculated to anticipate such future advances in the art of sound recording as are typified by the high volume prints which are scheduled to appear in the near future.

In addition to innumerable refinements made throughout the new system, its designers have perfected many basic features which they believe will profoundly influence the future course of sound system engineering.

For example, by replacing the ordinary machine oil which is commonly used in film stabilizing mechanisms with a unique and recently developed damping fluid, the chemical composition of which is not disclosed, "flutter" has been reduced to an imperceptible amount, precision measurements showing it to be far below that currently considered commercially acceptable.

Through the application of new circuit principles, the system's power has been stepped up to more than double the requirements of the Academy of Motion Picture Arts and Sciences. Loudspeakers employing the most advanced acoustic ideas yet made commercially available deliver, to fullest box office advantage, the higher sound quality these important features afford.

Technically, the new system begins with a compact film pulling mechanism, or reproducer set, in which every shaft turns in a ball bearing, and in which only one precision-machined sprocket engages the film.

"Single sprocket threading," in addition to its obvious simplicity of operation, makes for better quality in reducing the length of the film path and avoiding the excessive vibration which would be induced by a more complex gear train.

In adapting the principle of single sprocket threading to reproducer set design the engineers called to their service a tried and proved principle of film propulsion which has been standard in cameras and other precision recording equipment for many years.

Another departure from conventional design which materially reduces vibration and which, in consequence, contributes to smoothness and silence of operation, is a unique device for supporting the motor. The arrangement enabled the designers to locate the constant speed drive motor in a central position on one side of the reproducer set where, regardless of the projection angle, the motor-armature and its associated drive shaft operate horizontally.

Because the motor fits snugly against the side of the reproducer set and near its natural center of gravity, the entire assembly is stable, proper lubrication without leakage is assured, and no thrust bearings are required.

Gaudio Wins

TONY GAUDIO with his camera on Warner Brothers' "Juarez" took the honors of the Hollywood Reporters poll for the April releases. This means the correspondents who are assigned to Hollywood by newspapers of the world declared their opinion that the photography in "Juarez" topped that of the releases for the month.

8mm. Craig Projecto-Editor Now on Display at Dealers

Acclaimed as one of the finest movie aids yet invented, the 8mm. model of the Craig Projecto-Editor is now being shown at photographic dealers. If you have not as yet seen its 16mm. counterpart, it might be explained that this editing device introduces a new principle in animated projection.

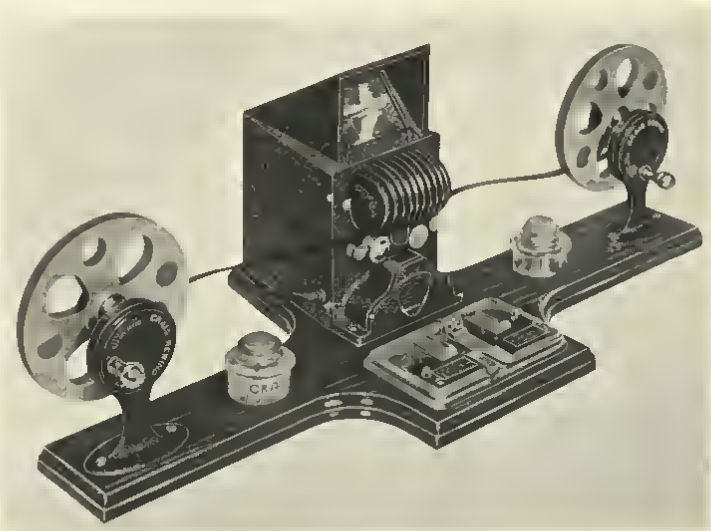
Due to a unique optical arrangement, which dispenses with mechanical shutters, the film may be drawn through fast or slowly while movement on the viewing screen remains smooth and blurless. Since the film merely lies in place between highly polished guides, it can be conveniently removed at will for cutting and splicing.

The complete outfit includes the Craig Junior rewind and splicer combination, mounted on a hardwood base with a bottle of film cement. It lists at $27.50. Projecto-Editor units may be purchased separately for $22.50.

Mogull's New Catalogue

Mogull Brothers, 68 West Forty-eighth street, brings out a new form of catalogue. April 1 there appeared Mogull's World Fair News, in newspaper guise, 12 by 17 inches in size and 16 pages in capacity. It is intended to take the place of the former issues and to make its appearance every two months or oftener if circumstances justify.

The firm believes in this way will it be able more readily to keep abreast of the numerous price changes and rapid advances made by manufacturers. Prominent in the new issue is an unusually large listing of 8mm. and 16mm. pictures for sale.



Craig Movie Supply Company's 8mm Projecto-Editor, bestowing on the smaller film the same advantages obtained through the 16mm. parallel device.

MAURER TELLS ENGINEERS OF 16mm. SOUND PROGRESS

SIXTEEN millimeter sound-on-film furnished the topic of several unusually interesting papers and demonstrations at the spring convention of the Society of Motion Picture Engineers, held in Hollywood May 17-21. Perhaps the most convincing of these was that given by J. A. Maurer, of the Berndt-Maurer Corporation of New York, well known as pioneer specialists in 16mm. sound.

Maurer had recorded his paper and demonstration on 16mm. sound film, which he played through one of the new Berndt-Maurer 16mm. re-recording heads or "film phonographs." The paper, highly technical in nature, dealt with improved methods of recording sound direct on black-and-white 16mm. film as contrasted to 35mm. recording and subsequent reduction to a 16mm. sound-track.

Both the recorded speech itself and the interspersed musical demonstrations furnished excellent evidence in support of Maurer's contention that by improved recording methods and equipment it is now possible to record directly on 16mm. a frequency range and hence potential sound quality considerably in excess of the reproducing ability of much commercial 16mm. sound equipment.

16mm. Glow-Lamp

That a special miniature glow-lamp for variable-density sound recording in 16mm. home movie cameras is now available was announced in a paper by D. Canady, of the Canady Sound Appliance Corporation of Cleveland.

This lamp, which is only slightly larger than a cigarette, according to Canady, "when used with an amplifier equipped with an automatic volume-control or 'limiter' circuit, is capable of turning out creditable sound-track in the hands of inexperienced persons. The only item necessary for making talking pictures in the home is a 16mm. camera modified to receive the glow-lamp holder."

Canady also described recent innovations in 16mm. projection equipment developed in France. Among these he mentioned that "La Societe des Telephones Ericsson recently introduced its 16mm. projector equipped with the new mercury arc. The projector, originally designed for small audiences, is now quite capable of competing with 35mm. machines

"The complete projector draws approximately 9 amperes at 110 volts and its screen brilliancy compares very favorably with the output of machines equipped with carbon arcs drawing 45 amperes.

"Some of the advantages claimed for it are increased safety factor as compared to the carbon arc; no smoke or heat as the lamp is water-cooled; and a minimum amount of space is required for the complete outfit. It can be used without a booth and the equipment is easily transported for portable use.

"The water cooling system consists of a motor-driven pump and radiator. If for any reason the water supply is interrupted, an automatic control instantly breaks the circuit going to the mercury arc. The mercury arc lamp is composed of a thick-walled quartz tube in which are mounted two tungsten electrodes with a drop of mercury between them under a pressure of 100 atmospheres. An outer shell permits the cooling water to flow around the lamp."

Sprocketless Projector

Also described in Canady's paper was a radically new sprocketless French projector which automatically forms and maintains the loops. He stated "The Oehmichen substandard projector is unique in that it employs no toothed sprockets and provides automatic loop regulation.

"A feed roller is used with marginal rubber tires, rotating at a peripheral speed slightly greater than the average speed of the film. When the film is pulled down by the intermittent movement and the loop decreases in radius, pressure of the film against the roller increases rapidly.

"As this roller is moving at a greater speed than the film, the loop is quickly restored As the radius of the loop increases, pressure against the roller is gradually lessened to the point where there is little or no traction.

"After leaving the intermittent movement, the film passes over another rubber-tired roller which has a peripheral speed slightly less than the film, forming the lower loop. When the radius of this loop decreases for any reason film tension against the roller increases and the loop is quickly restored to normal size.

"In threading, careful adjustment of the loops is unnecessary. Once the machine is under way, it assumes control and maintains loops of proper size regardless of perforations or film shrinkage."

Sound Projection Room

Canady also described a deluxe French sound projection room, equipped with high-fidelity sound equipment for projecting not only the familiar standard and substandard formats, but also two unknown in this country. He says, "The projection-room of the Musee de l'Homme at the Trocadero (Paris) is equipped with an unusual outlay of equipment to accommodate the various formats now in use in France.

"In addition to two 35mm. projectors, the installation includes one 16mm. Kodak projector, one 17 5mm Pathe projector, and one 9.5mm Pathe projector, each of which is equipped with a special-built sound-head . . . . and carbon-arc lamp . This unusual installation was handled by Film et Radio (Paris) under the direction of an American engineer. Other than certain projectors, all apparatus is of American manufacture."

Mrs. Van Trees Passes

The members of the A. S. C join in extending sincerest sympathy to Past Vice President James Van Trees upon the death of his wife, Mrs Leonette Van Trees. The end came on May 23 after a brief illness. Interment was at Inglewood Park Thursday, May 25.

Victor Extends Sound

The new Victor Add-a-Unit Animatophone, just recently announced, makes it possible for educational and business institutions of all kinds to acquire 16mm. motion picture and sound equipment adaptable to all requirements. This new multiple-variation and multiple-use motion projector and sound system is manufactured by the Victor Animatograph Corporation of Davenport, Iowa. All units of the Victor Add-a-Unit Animatophone are interchangeable.

Besides the apparent practicability, this new all-purpose sound system is economical, because units may be added as desired. Starting with the small, compact, basic sound projector, which is complete in itself, an outfit of any size can be secured by simply adding auxiliary units.

The Victor Animatophone basic projector provides silent or sound motion pictures, microphone facilities and phonograph record amplification for an average sized room, without addition of any Add-a-Unit equipment.

Los Angeles Cinema Club

The meeting of the Los Angeles Cinema Club was held on the evening of May 2 in the Vine Street School auditorium.

Member Freehairn discussed a method of sound on film for the amateur 16mm user. His wife, who is commercially engaged in the making of sound films, then demonstrated her results with the showing of several reels in sound.

The remainder of the meeting was devoted to the showing of a Kodachrome travel film, taken by Member Harry Parker during his recent trip around South America. Mr. Parker commented entertainingly during the projection by the use of an efficient lapel microphone and speaker demonstrated by Fred Champion.

Announced for the next month's meeting is an "uncut film contest," any members' films in one or two reel lengths eligible, providing they were shown "as taken," without splices or any form of editing. ED. J. PLYE, JR

Photos by "Dick" Whittington, 3845 Wisconsin street, Los Angeles.

WHITTINGTON LAB ON WHEELS HAS LOT TO DO

SHOWN herewith is one of the "Dick" Whittington Photography's most valued pieces of equipment. So far as the company is aware it is the only contraption of its kind in existence. The officers of the concern will be surprised if it is not duplicated by professional photographers in all principal cities.

The Trav-L-Lab, as it is known, has been in steady use since the first of the present year and has covered all of Southern California. Using the high platform and the ladder, the company has been able to secure hundreds of photos otherwise unobtainable. The company sends in the accompanying pictures in the belief other photographers will be interested in the practicability of this mobile equipment.

Designed primarily for the company's News Pictures Division, it is in constant use by all departments. Here are the features of its construction. It is on a 1939 Dodge one-ton chassis. The total weight of the job is about 5500 pounds. It has a floor area of 65 square feet. It is completely equipped as a photographic laboratory, both for processing negatives and making prints, including enlargements up to 30 by 40 inches.

Six Men on Roof

It has running water. Water is electrically heated and cooled with ice refrigeration. The laboratory is air conditioned by both intake and exhaust fans. The roof is covered with non-skid rubber matting and will easily accommodate six news photographers.

The extension ladder is an integral part of the body and extends upward 35 feet from the ground. It is sufficiently rigid to shoot time exposures except in a strong wind, which makes a faster exposure necessary.

The ladder, when collapsed, fits into a recess in the roof. The Trav-L-Lab has a top speed on the highway of 60 M.P.H., and film processing is carried on while at a standstill or while in motion. On location the laboratory is also used as a dressing room for models. The cost was less than $3500.

Wholesale Issues Book

The Wholesale Radio Service Company Inc. of New York and other cities has issued a catalogue of 184 pages and cover, timed for the spring and summer of 1939. The publication is 7 by 10 inches and is packed with information. The final twenty eight pages are devoted to cameras and parallel equipment —and is quite a book in itself.

Few Simple Tools Are Adequate

(Continued from Page 263)

a primitive tribe before I felt it prudent to take out my cameras and begin work.

All my black-and-white motion pictures are 35mm., photographed on Eastman Super-X film, which, after much experience, I have found to be most satisfactory for speed, fineness of grain, and uniform quality. It is especially effective in artificial light. My developing, printing, and other laboratory work is done by the H. E. R. Laboratory of New York

I carry three Leica cameras, one always loaded with Kodachrome color film and fitted with a Summar f:2 50mm lens, the second with an f:3.5 35mm. lens, the third with the Xenon f:1.5 lens

Uses but Two Filters

Nearly all my recent still pictures were taken with a Leica on Super-X film. I use but two filters, one a medium yellow (K 2), the other a light red (23 A).

Incorrect exposure means much ruined film and many lost scenes. By using Weston light meters I have reduced such losses to a minimum. These accurate, long-lasting, little photo-electric "eyes" may earn back their cost in an hour.

Lighting equipment must be used if I am to obtain those intimate scenes inside homes, churches, schools, restaurants, nurseries, mines, factories, hospitals, and court-rooms, without which I would consider my film stories of any country incomplete.

My light kit, which fills only two small suitcases, consists of one dozen No. 4 photo-flood bulbs, several adjustable stands and reflectors, 300 feet of extension cable, a series outlet, and assorted types of electric plugs to meet the needs in different countries.

In hooking up my lights, I have blown out scores of fuses in places ranging from Russian grocery-stores to the Presidential Palace of Turkey; but I carry a stock of replacements for such emergencies—and pity the photographer who doesn't!

Carries One-Minute Flares

Since much of my photography is done in regions lacking electric lights, I also carry a water-proof box of one minute magnesium flares, 100 or more flash bulbs for the Leica, and several home-made sun reflectors.

In taking pictures abroad I have not yet had any of those shabby adventures, considered clever by some, in which the American photographer, enjoying the hospitality of a foreign state, is "boldly snapping forbidden pictures" with the police "hot on his heels"—only to be "outwitted" by him, of course. It may sound thrilling, but both the practice and the pictures are bad.

In eight years of human interest photography, in such thoroughly regulated countries as Japan, Germany, the Soviet Union and Turkey, I have had little of the unpleasantness which travelers frequently report.

A reputation for fairness, a frank and friendly attitude toward the local authorities have enabled me to get exclusive pictures in places where other photographers—sometimes even natives of the country—were forbidden. I must confess, however, that increasing governmental restrictions in many countries have at times made diplomacy a major part of my job.

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Underhill Returns

Joseph L. Underhill, for ten years manager of motion picture sound recording activities for RCA Photophone, Ltd., in London, has returned to Camden to take over important new duties under the direction of Max C. Batsel, RCA Photophone chief engineer.

Underhill is a native of Indiana, and studied engineering at Purdue. He joined the RCA organization in 1929 in the sound recording division in New York. He was assigned to London later in the same year. In addition to his responsibilities in England, Mr Underhill also was in charge of RCA Photophone's technical developments on Continental Europe.

Thalhammer Issues Line of Photographic Accessories

The Thalhammer Company of Los Angeles, California, announces a line of Kino photographic accessories, manufactured by the makers of Thalhammer tripods. All of these new items are described and illustrated in the Thalhammer 1939 catalog.

The Kino all-angle base for use with the Leica, Retina or Midget Marvel cameras will, according to the manufacturers, achieve any camera angle—vertical, horizontal, or diagonal. The precision construction allows smooth action in changing camera angles. The Kino all-angle base for the Leica or Retina is priced at $8.50; for the Midget Marvel, $10.

The Kino Universal all-angle hinge is a sturdily constructed hinge that gives the photographer a smooth action for attaining any camera angle wanted. It is designed to fit all miniature cameras. The price is $6.50.

The Kino combination all-angle base for the Leica is a combination of a base which permits any camera angle and a set of Kino extension rods and an adjustable sunshade and filter holder. Through the use of the extension rods the filter holder may be used with any of the Leica lenses.

There is a two-way adjustment on the sunshade vertically and horizontally to permit perfect fit around the lens. This complete combination is priced at $30.

The Kino Movie Assembly is available for use with most makes of movie cameras. The assembly is a combination of the Kino extension rods

The Thalhammer Company has enlarged its quarters. The new address is 1015 West Second street, Los Angeles. The new 1939 catalog is available

Agfa Issues New Film

A new film for documentary recording, just announced by Agfa Ansco Corporation, climaxes a period of extensive research in the microcopying field.

This new film, because of its exceptional high resolving power, is ideally suited to bibliographic and documentary recording requiring considerable minification. The new Agfa Minipan film provides a proper balance of such factors as speed, contrast, color sensitivity and halation protection.

These factors have been adjusted to give a film of the greatest possible practicability, while holding the resolving power at a maximum. The new film is capable of resolving up to 135 lines per mm. (3400 lines per inch) according to the precision of the recording equipment used.

Agfa Minipan is available in the following standard units 100 and 200 feet rolls, 35mm., unperforated, darkroom loading. 100 and 200 feet rolls, 35mm., with single perforation, darkroom loading.

Following numerous requests for a popular priced tripod and pan head combination, one that might embody some of its exclusive features, the Thalhammer Company of Los Angeles is now manufacturing its new Thrifty 10. Dispensing with chrome plating and some of the more deluxe fittings, yet retaining all its rugged and precision-built qualities, this unit has been designed to sell for $10. Its tilt-pan head has a natural metal satin finish, and incorporates the exclusive Thalhammer "Instant On" Plug. The tripod is made of selected, seasoned wood, finished in clear lacquer metal parts polished or coated with black enamel.

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Press Photography

Press Photography with the Miniature Camera. By Duane Featherstonhaugh. Illustrations (25) by the author. American Photographic Publishing Company 159 pages. 1939. $2. Boston

IN ITS introduction this book sets forth that good books on press photography are very rare. It points out that most of those that have been published have sought to explain the working methods of the press photographer in terms of theories. Also they have assumed he could have the use of far more equipment than is obtainable in the average newspaper office.

Press photography, it also points out, is photography reduced to its simplest terms, and it is this simplicity which enables its followers to obtain outstanding results with a minimum of time and effort.

The author declares the average amateur would do well to study the work and methods of the news photographers. He suggests if he does he is sure to find his pictures will be much better and that his time, trouble and expense will also be reduced

The chapters include the miniature camera's place in the field, cameras, equipment, exposure, processing, subjects, taking the picture, selling the picture, the staff photographer, specialties and ethics.

Press photography with the miniature camera is an entirely new development. Five years ago, says the author, not one paper in a hundred owned one of the smaller cameras, while today almost every paper with a circulation of twenty thousand or more owns at least one miniature in addition to its battery of larger cameras, Graflex or Speed Graphics.

Old-time press photographers or even comparatively new comers who have been taking pictures only for five or ten years are suspicious of the tiny camera, yet there can be very little doubt it is winning its rightful place in the field, the author declares.

It is conceded the average worker will find it easier to produce good pictures with a large camera than with a miniature, but his problem is one of technique, and the worker who really strives to adapt his technique to the camera he is using will soon find that he is able to overcome any difficulty encountered in processing and printing the smaller negative.

Philadelphia Cinema Club

Playing host to a group of neighboring movie clubs, the Philadelphia Cinema Club's May program included the showing of films presented by and through the guests.

It was our pleasure to entertain a group of over 350 amateur movie enthusiasts, including representatives from the Allentown Movie Club, the Olney Camera Guild, the Raritan (N. J.) Photographic Society, the Bell Movie Club, the Norristown (Pa.) Cinema Club and the Trenton (N. J.) Movie Makers.

Through the courtesy of the Trenton Movie Makers there was presented a 400 foot reel of 16mm black and white film carrying the title "Iron and Steam." This is the work of Charles Dobbins of the Trenton organization. It depicted scenes along the Pennsylvania Railroad between New York and Philadelphia, as well as interior shots of the station in New York City.

From the Norristown Cinema Club the offering was a 400 foot reel of 16mm combination Kodachrome and monochrome entitled "Skiing in the White Mountains," the work of Robert Stafford of the Norristown group. The camera work as well as the scenic effects in this film were well done

Through the courtesy of the Fisher Body Division of General Motors Corporation an opportunity was presented to the combined groups to see its 16mm sound on film entitled "Let's Go Fishing," in which the narrative work is done by Ted Husing.

The final showing of the meeting was a review of the late Ripley Bugbee's film "Mighty Summits," originally presented at our banquet in February. The requests to see this film again were so great that it was once more put on with Robert W. Crowther handling the musical background via the double turntable method. For breathtaking beauty, real photography, perfect scenic work, the film stands by itself, and is indeed a fitting final tribute to the memory of the man who was so instrumental in the original organization of the Philadelphia Cinema Club.

B. N. LEVENE,
Chairman Publications Committee.

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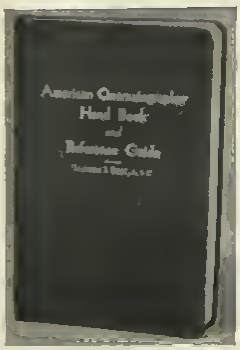

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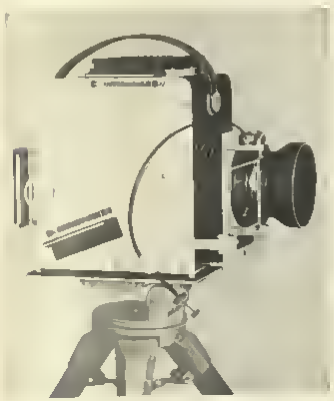
CURTIS COLOR CAMERA LIGHT AND FAST

THOMAS S. CURTIS Laboratories, Huntington Park, Calif., announce a new two-mirror, three-color camera of near-miniature size designed expressly for personal use. Curtis Color-Scout weighs but five pounds. With lens and one dozen loads of film total weight is but seven pounds and the size is comparable with a 2¼ by 3¼ reflex camera.

Constructed entirely of aluminum alloys, with the optical chassis formed from a single normalized casting of an alloy developed by the Aluminum Company of America expressly for uses wherein complete permanence of size and shape is essential, the little Color-Scout with the care deserved by any fine precision camera will give a lifetime of unimpaired service.

The Color-Scout is the result of seventeen years' continuous research in direct color photography by a pioneer designer and manufacturer of color equipment. The camera embodies every known and many completely new features making for precision of register,



Curtis Color Camera

color balance, freedom from internal reflections and flare, maintenance of even illumination of the three emulsion apertures, convenience and speed of operation as well as extraordinary compactness and light-weight in an all-metal camera.

The 2¼ by 3¼ negatives enlarge to 11 by 14 with a quality usually associated with five by seven negatives. The field research has been extremely thorough, hundreds of exposures having been made under conditions ranging from motion picture studio set and gallery shots to portraits in the home and in landscapes from the desert below sea-level to the mountains over a mile high.

Every known form of lighting has been employed, from the orthodox to the "trick" variety in order that the versatility of the camera might be explored under actual service conditions.

Curtis Color-Scout is unique in three-way, two-mirror cameras in that it is beautifully streamlined in design and rests upon its own natural base. The awkward shape inherent in many two-mirror cameras has been overcome resulting in a design that is beautiful, practical and convenient in use.

The speed of the Color-Scout is extraordinary,—a full, honest Weston 12 in daylight resulting in fully timed negatives with exposures of 1/100 second at F.8 in sunlight, with ample reserve for instantaneous exposures in the shade or on dull days at apertures of from F.4.5 to F.6.3.

Abstract of Papers From Convention of Engineers at Hollywood

Television Lighting. William C. Eddy, National Broadcasting Co., New York, N. Y

A Direct-Reading Photoelectric Densitometer. D. R White, Dupont Film Manufacturing Company, Parlin, N. J.

A photoelectric densitometer has been built which shows the density of the area being measured on a direct-reading scale visible at a reading window. A density range from 0 to 3.0 is covered with a reproducibility of approximately ±0.005. A motor-driven circular neutral wedge is used as the balancing means,

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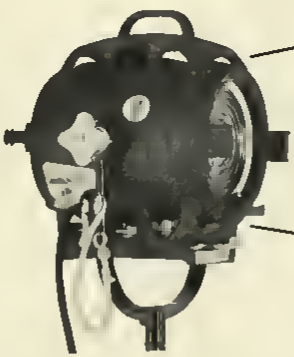

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and the density scale marked on the wedge is read by a stroboscopic flashing light controlled through a special amplifier system.

A Multiduty Motor System. A. L. Holcomb, Electrical Research Products, Inc., Hollywood, Calif.

Various features of motor drive systems now in use by motion picture studios are described and the requirements for an ideal system defined. A recently developed system is described that will operate efficiently on alternating current for stage use or on direct current for location work. Many operating facilities are included which a survey has indicated should become a part of any ideal motor drive system.

Recording and Reproducing Characteristics. K. F. Morgan and D. P. Loye, Electrical Research Products, Inc., Hollywood, Calif.

In the improvement of sound motion pictures, the trend has been to make the response of all parts of the recording and reproducing circuits as nearly "flat" as possible. In some cases, however, this has resulted in unnatural sound, and therefore certain empirical practices have been adopted in the studios and theaters to make pictures sound best.

A New Mobile Film Recording System. B. Kreuzer, RCA manufacturing Co., Hollywood, Cal., and C. L. Lootens, Republic Productions, Inc., North Hollywood, Cal.

The design requirements for this type unit and how these requirements were met in the selection of truck, body design, equipment layout, etc., are discussed. The recording equipment utilized together with the power equipment and other special features of the unit are described. This type of unit has been in successful operation without revision.

Safekeeping the Picture Industry. K. W. Keene, Underwriters Laboratories, Inc., San Francisco, Calif.

The purpose of the paper is to deal with a very specialized phase of the motion picture industry; that is, its hazards of fire and consequent accident, as due not solely but chiefly to the prevalent use of nitrocellulose film. Consideration will be given to the causes of hazards and an attempt made to show that they are real and what is being done about them.

The paper concludes with a discussion of some of the underlying considerations affecting the Standards of Underwriters' Laboratories as applied to projectors, rewind machines, sound amplifiers, speakers, etc.

RCA Aluminate Developer. J. R. Alburger, RCA Manufacturing Company, Camden, N. J.

Push-Pull Class A-B Sound Tracks. C. H. Cartwright, Massachusetts Institute of Technology, and W. S. Thompson, RCA Manufacturing Company, Inc., Hollywood, Cal.

After an explanation of the term Class A-B and a brief specification of such a recording system, the general requirements for the operation of any Class A-B system are given and illustrated.

Differences between the operation of push-pull photocells and push-pull vacuum tubes are pointed out and explained, and a discussion of the relative advantages of Class A, Class A-B, and Class B push-pull tracks is given.

The Preservation of History in the Crypt of Civilization. T. K. Peters, Oglethorpe University, Ga.

The problems confronting the scien-

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tist who inaugurates the unique task of preserving in film for the people of the eightieth century a complete picture of our life in America today; the problem of the life of film and of its relationship to ancient papyrus that has come down to us over sixty centuries; the method of preserving it; the microfilming and preparation of the records; the making of a duplicate film on metal; and the entire scope of the project is set forth and discussed.

New Frontiers for the Documentary Films. A. A. Mercey, United States Film Service, National Emergency Council, Washington, D. C.

The motion picture today is the legacy of experimentation of the past. The ancient Egyptians indicated movement in their processional hieroglyphics; the Greeks suggested movement in the magnificent friezes on the Parthenon.

Muybridge's famed experiment with twelve cameras to catch the movements of a horse was antedated by experimentation of centuries before. Kircher with his magic lantern in 1640, Peter Mark Roget, Sir John Hershel, von Stampfer, Sellers, Heyl, the great Faradsy, Daguerre, and Niepce—these and others worked and contributed to establish in practicality the law of persistence of vision with regard to moving objects.

A New Magnetic Recorder and Its Adaptations. S. J. Begun, Brush Development Company, Cleveland, Ohio.

A magnetic recording machine is now commercially available, using an endless steel tape loop as a recording vehicle. Such an endless loop makes it possible to record and reproduce without reversing the direction of rotation of the mechanism. Neither is it necessary to manipulate the recording and pick-up heads.

Lamps and Optical Systems for Sound Reproduction. F. E. Carlson, General Electric Co., Cleveland, Ohio.

Sound reproduction systems are designed on the premise that the sound-track will be illuminated by a scanning-beam of substantially uniform flux density. This paper presents results of extensive studies of the actual beam characteristics for all types of optical systems and lamps employed in the reproduction of sound from film. They were made possible by a unique microphotometer, designed by the author, with which the scanning beam can be analyzed in minute elements.

The studies cover: Relative levels of scanning beam illumination; effect of source displacement from design position on total flux at the sound-track; microphotometer recordings of distribution of flux density across the beam as affected by optical systems and source forms and by displacements of the source.

Further Improvements in Light Record Reproducers and Theoretical Considerations Entering into Their Design. A. L. Williams, Brush Development Company, Cleveland.

A Reel-and-Tray Developing Machine. R. S. Leonard, Municipal Light and Power System, Seattle, Wash.

A reel-and-tray film processing system of 7 to 200 foot capacity, designed to overcome deficiencies in existing small scale film processing equipment, is described. Some of the difficulties encountered in its construction are related, and a summary given of the results in practice.

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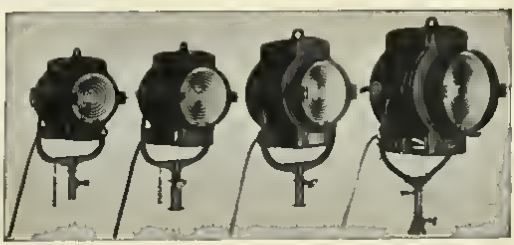

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Carlos Spinoza ... her favorite courtier
Paul Smith ... her secret admirer
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Scene 1 (Fade-in) (Interior). Winslows' luxurious apartment living room. Marie, the maid, crosses and admits Paul, who is laden with flowers and candy.

Scene 2 (Closeup) Paul's sincere and eager smile as he hands his things to Marie.

Scene 3 (Closeup) Marie's smile of welcome as she takes them. Paul, in her opinion, is her mistress' only sincere caller. The others are hypocrites.

Scene 4 (Medium). Marie motions Paul to a seat and sets the flowers and candy on a nearby table and exits for a vase. Paul picks up a small volume from the table and thumbs it idly. Marie returns with a vase of water and starts arranging the flowers in it. Evelyn appears in a doorway, garbed in negligee.

Scene 5 (Closeup) Evelyn setting her mood for Paul. She's tolerant of his attentions, which appeal to her vanity; but she prefers her other followers.

Scene 6 (Medium) Evelyn, pausing only momentarily, enters the room with her hand extended toward Paul, who rises to greet her. On her face is a pleasant but supercilious smile. Paul is wide-eyed with worship for her (Closeups optional).

Scene 7 (Medium). Marie, finished arranging flowers, exits. Evelyn approaches flowers with rapturous appreciation. She loves flowers. She selects a small bud from the bouquet and inserts it in his lapel. Then, pushing him on to a chair, she, in a slightly dutiful manner, opens the candy and proffers it to him. Then, glancing somewhat apprehensively at a nearby clock, she turns on the radio. Evelyn pulls Paul to his feet and they dance. While they are dancing Marie enters, crosses, and, opening the door, admits Carlos.

Scene 8 (Medium-close). Carlos, the smooth, oily type, is also laden with candy and flowers. Paul and Evelyn cease dancing as Marie takes Carlos' things. Evelyn approaches Carlos, who gallantly kisses her hand and, next, abruptly nods to Paul, but returns his attentions to Evelyn, telling her that she must hurry if they are not going to be late for where they are going.

Scene 9 (Medium). Evelyn stepping back from Carlos, makes her excuses to the two men and exits, leaving Paul puttering with the radio, Carlos strutting to Paul's discomfiture, and Marie arranging the second vase of flowers, which are ever so much more pretentious than Paul's. Finally, Marie exits, leaving Paul reseated and thumbing a volume again, while Carlos stands rather arrogantly admiring the flowers he's just brought. (Fade-out).

Scene 10 (Fade-in) (Medium). Paul and Carlos glaring rather balefully at each other as Evelyn returns dressed for the street, closely followed by Marie. Evelyn goes over to Paul with an imploring attitude. She begs with facial expression and gesture to be excused, that she must leave with Carlos, as it had been previously arranged. Toward Paul she's slightly patronizing. Paul shrugs agreeably and motions not to mind him. He adores her and wants her to be pleased in all things.

Scene 11 (Medium). Evelyn leaving with Carlos as Marie enters. Marie

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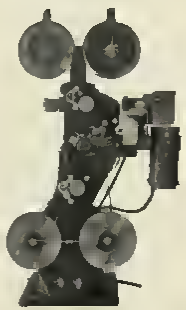

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asks Paul if she can get him a drink or something before he leaves. Paul shakes his head and, picking up his hat, walks over to the mantel where there is an exquisite photo of Evelyn. He stands a moment in silent worship of her picture. Not far from it is a photo of him and also one of Carlos. Marie joins him as he, with a sniff, glances at Carlos' picture. She, too, looks at it wrinkling up her nose in a distasteful rabbit's face. She is in sympathy with Paul's love for Evelyn and the latter's subsequent neglect of him. She tells him to just wait, that one fine day she'll fix that "heel" Carlos for good. Paul only shrugs and pats Marie appreciatively on her shoulder, as he heaves a bit of a sad sigh and exits. Marie busies about setting things to rights. (Fade-out).

Scene 12 (Fade-in) (Medium). Evelyn, returned from her outing with Carlos, entering her apartment living room, calls Marie, who enters and takes her things. Evelyn, tired, drops into a chair. Marie pauses by the mantel and looks contemplatively at the two pictures of Paul and Carlos, and then over at Evelyn, who is sitting relaxed. Picking up the photo of Carlos, Marie approaches Evelyn in an apologetic manner and cautiously opens the conversation. Evelyn is interested She likes—and trusts—Marie, her maid and companion. (A sub-title, or two, may be necessary here.) Marie tells Evelyn that she knows Carlos' type well, that he's a hypocrite and a "heel"; that, worst of all, he's a skirt-chaser, and as uncertain as the weather, and as unfaithful as an alley cur. This latter remark and attitude arouses Evelyn, who defends Carlos with irritated emphasis. Marie, finally replacing the photo on the mantel, says that some day she'll show up Carlos for the "heel" and skirt-chaser that he is. Then, picking up Paul's picture, Marie adds that there's a regular fellow for you; that he's the one Evelyn should encourage most. Thereupon, Evelyn sniffs rather disdainfully and agrees that Paul's all right but not exciting enough for her ultra-active temperament. (Fade-out).

Scene 13 (Fade-in) (Medium). Evelyn's kitchen the next morning. Marie and Evelyn are preparing a hamper of lunch for a picnic. There is the usual picnic-basket equipment for four. (Fade-out).

Scene 14 (Fade-in) (Medium). Evelyn's living-room. Marie enters, crosses and admits Carlos, who has a package of something for the picnic. He follows Marie out into the kitchen.

Scene 15 (Medium). Evelyn's kitchen. Marie and Carlos enter. Carlos greets Evelyn and goes through his hand-kissing routine, and then offers to help.

Scene 16 (Medium). Living-room. Marie enters, crosses and admits Paul, who is also carrying something for the picnic. Paul follows Marie into the kitchen.

Scene 17 (Medium). Kitchen. When Marie enters, followed by Paul, there is a fleeting look of consternation on Carlos' face, as though he didn't know—and resents—Paul being invited. On a quick second thought he decides to make the best of it and, overdoing it a little in patronizing, he enthusiastically greets Paul after Paul has paid his respects to Evelyn and thanked her for inviting him. (Fade-out).

Scene 18 (Fade-in) (Medium-Close). Evelyn's dressing room. Evelyn, aided by Marie, is putting on some final touches. In an off-hand moment, Marie gives Evelyn a sealed envelope and asks her to keep it for her until they return from the picnic. Evelyn's curiosity about it is displaced by Marie's casualness as she shrugs that it's nothing very important. Anyhow they are in a hurry to be off. Evelyn tucks the envelope in a drawer in her dresser. (Fade-out).

Scene 19 (Fade-in) (Medium) (Exterior). Outside Evelyn's apartment house. Parked are three cars: an expensive looking one belonging to Carlos, a cheap one of Paul's and, a large open one belonging to Evelyn. Through the apartment house door comes Evelyn and Marie, followed by Carlos and Paul, the latter carrying the huge picnic hamper, which is stowed in the rear of the open car. Evelyn asks Paul to drive, and Marie to sit in front with him, while she and Carlos occupy the rear seat. As they drive off—(Fade-out).

Scene 20 (Fade-in) (Exterior). The car is stopped at a likely picnic spot, far out on the countryside. (Cut in shots of scenery: landscapes, clouds, etc.). All aid in spreading the picnic set-up under a huge tree. As they begin to eat—(Fade-out).

Scene 21 (Fade-in) (Medium). The lunch setting. They have finished eating. Marie has begun to put the things away. Evelyn, laughing, jumps to her feet and, grasping Paul by the hand, wants to run with him to a creek several yards away. (A chase-shot might be cut in here).

Scene 22 (Medium). At the creek the water is tempting. Impulsively, Evelyn decides to go wading. She rolls up her slacks and pulls off her shoes and sox. Paul does likewise, and hand-in-hand, they wade, laughing and joking. They enjoy it.

Scene 23 (Medium). Back at the picnic setting, Carlos is helping Marie. He somewhat covetously notices, as though for the first time, her trim little

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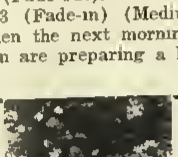
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figure. As he aids her in putting things away, he takes every opportunity to brush against her caressingly; and, when he hands her things, he catchss her fingers in his every chsnce he gets. Every time he does either of these things Marie gives him a sort of a "naughty-naughty" look. Once, when he tries to throw his arms about her (the waders in the creek are out of sight), she wriggles out of his grasp. She continually keeps an alert eye peeled in the direction of the creek. When she sees the waders returning, she picks up the cloth, or blanket, on which the lunch had been spread and goes behind some nearby bushes to shske it out. Carlos follows her, not seeing the waders returning so concentrated is he on Msrie. Then, too, the waders are more subdued, not ss noisy as they were when they ran to the creek. They're tired and returning quietly.

Scene 24 (Medium-Close). Behind the bushes where Msrie is shsking the blanket. Carlos again tries to embrsce Marie. She eludes him until the instant Evelyn and Paul come within vision in the background, unseen by Carlos, and she submits. He embraces her, kissing her with great earnestness.

Scene 25 (Medium). Msrie, suddenly, now that Evelyn has seen them, decides to repel Carlos. She struggles snd wriggles, and finslly escapes him, running back toward the csr. Evelyn, who has caught up with them, her eyes flashing fire, contemptuously berates Carlos; telling him, in ladylike low-voice but none the less cuttingly, just what she thinks of him and what he can do. She then turns to Marie and gives her a composed but effective verbal lashing, and, in conclusion, discharges her. Paul looks toward Msrie with sympsthy. He doesn't think she should be blamed for Carlos' vileness.

Scene 26 (Medium). They board the car for the return trip, Evelyn sitting in front with Paul, more friendly toward him than ever, as the other two are compelled to sit in the rear. (Fade-out).

Scene 27 (Medium). Exterior of Evelyn's apsrtment house ss they drive up. Carlos, with s contemptuous look at Marie, another sneer for Paul, makes a brief apology to Evelyn, wbo, with quiet severity, asks him kindly to forget that he knows her, snd, turning her back on him, talks to Paul behind the wheel. Carlos walks rapidly away without s backward look, climbs in bis nearby parked car and drives off. Marie is still seated in the back sest, a bit uncertain. Evelyn turns to her and orders her upstairs to pack her things and leave; telling her that when she, Evelyn, comes upstairs, she doesn't want to see any sign of her, or anything belonging to her. Marie exits through spartment house door.

Scene 28 (Medium-close). Evelyn and Paul, still seated in the front sest talking. Paul remonstrates with Evelyn about the dismissal of Marie—saying that she's s bit too harsh, that Carlos was a cad, etc. But Evelyn contends that Msrie sppesred to be enjoying the lovemaking ss sbe hadn't started to repel Carlos untri she, Evelyn, came into sight back at the picnic. Paul feels that he should stick up for Marie because she's sympathized with him and his troubles. When Marie finally comes down with her bsgs, Evelyn's snd Paul's argument has become quite beated, especially when Evelyn hints that maybe Paul, too, is interested in Marie. Paul becomes insulted snd, getting out of the car, tells Marie that if he csn drive her anywbere to get in his little car which is nearby. Evelyn is furious.

Scene 29 (Medium). Marie, as she permits Paul to help her into his car with her bags, turns to Evelyn and tells her to read the letter she handed her that morning to keep for her. (Fade-out).

Scene (Fade-in) (Medium-close) (Interior). Evelyn in her dressing room, opening the letter Marie handed her that morning. She opens it and reads:

Scene 31 (Insert). A brief typewritten, or large bold, hand-written note:

My dear Eve:

Today st the picnic, I'm going to try to show you what a common skirt-chsser your good friend Carlos is. He'll probably try to make love to me if you are out of sight for even a moment. I'll let him do so just long enough for you to see —to prove that I'm right about him. Your loyal— MARIE

Scene 32 (Medium-close). Evelyn reading Marie's note, and suddenly realizing what she's done. (Fade-out).

Scene 33 (Fade-in) (Medium-close). Paul snd Marie stopping in his car outside his apsrtment house. Together they leave the car snd enter the building.

Scene 34 (Medium). Interior Paul's spartment. The door opens and Marie enters. Psul, psusing to withdraw his key from the lock, follows her in and closes the door.

Scene 35 (Insert). Paul's phone rings.

Scene 36 (Closeup). Paul answers telephone.

Scene 37 (Closeup). Evelyn talking into phone. She's asking what Paul did with Marie—that it was all a misunderstanding—that she wants her back.

Scene 38 (Medium). Psul talking ta Evelyn over phone, beckons to Marie and embraces her with his free arm as he telks. He tells her that she can't have Marie as Marie is going to keep house for him—legally; and that she, Evelyn, had better not call h'm up any more, ss Msrie is very jealous. He hangs up the phone, and embraces and kisses Marie.

Scene 40 (Medium). Evelyn, as she hangs up her phone, psuses reflectively, rapidly flips through the pages of s note-book, finds a number and dials it.

Scene 41 (Medium). Andre Saffron, another smootb, oily type of man, picks up his phone snd is overioyed at the sound of Evelyn's voice. He talks animatedly and enthusiastically.

Scene 42 (Medium). Evelyn talking into phone with a silky, saccharine expression on her face as we—(Fade-out).

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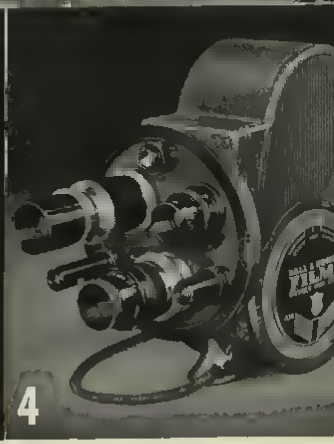
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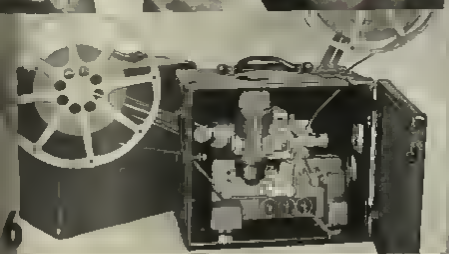
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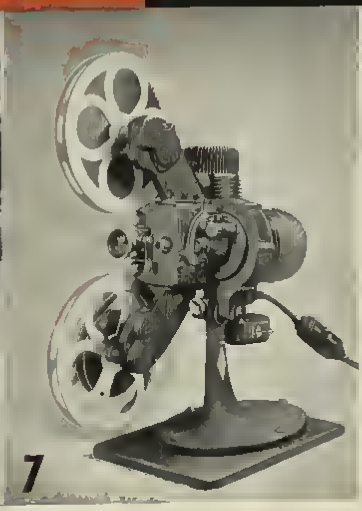
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